FEEDSTUFFS

The Weekly Newspaper for the Feed Industry

Volume 32—Number 52 | DECEMBER 24, 1960 | 1 Year $5, 2 Years $8

FEEDSTUFFS *Features This Week*

SHEEP NUTRITION—Sheep nutrition papers presented at the American Society of Animal Production meeting are summarized on **page 10.**

BENTONITE—Studies on the use of bentonite in poultry nutrition are discussed on **page 18.**

CUSTOMER SERVICE—This Pennsylvania firm builds business volume with customer service. **Page 26.**

EGG PRICING—The need for a new type of price quotation in the egg industry is discussed on **page 36.**

EXTEND TERRITORY—Establishing a second mill has helped an Illinois firm extend its sales territory profitably. **Page 50.**

VITAMIN E—Standards and methods of analysis of vitamin E are the subject of a report on **page 52.**

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Pig Crop Report Reflects Stability in Hog Industry

By JOHN CIPPERLY
Feedstuffs Washington Correspondent

WASHINGTON—The U.S. Department of Agriculture pig crop report for spring 1961 indicates that the swine community has reached and maintains a high degree of stabilization. It means that swine feeding demands for corn and soybean meal will also be stabilized at about last year's level and the next boost in demand for feedstuffs will come later in the new year.

This information confirms the previous belief that Secretary Benson had established a fine corn program, profitable to the corn-hog community and now indicated as continuing through the next calendar year. It also must mean that no new secretary of agriculture would venture into any tinkering with the big food supply either through high corn price supports or soybeans.

There have been substantial rumors, gossip or what-have-you to the effect that the incoming administration would boost the price support level for soybeans to about $2 bu.

This pig crop report should or must give any prudent administrator pause. This report means that things in the corn-swine belt are in balance. The fall farrowing report shows that there is indicated a steady decline in hog slaughter for the first six months of 1961. It also means that after that time a new increase in the swine population will increase the demand for corn and soybean meal late next year.

Indeed, Secretary Benson handed his successor a bountiful Christmas gift as this report of USDA is issued since it gives him protection in a farm area which is usually difficult if not disastrously troublesome.

Reflects Revision

The pig crop report reflects a revision of previous reports and might lead one into the snare of confused

(Turn to STABILITY, page 65)

Spring Pig Crop Expected to Be 5% Over 1960

WASHINGTON—The 1961 spring pig crop is now expected to be about 5% larger than a year earlier. This increase is considerably less than indicated in some earlier forecasts.

(Also see accompanying article on certain aspects of the pig crop report and indicated effects of swine numbers on commodity markets.)

The expected increase in the 1961 spring (December-May) pig crop will follow the decrease from a year ago which occurred in 1960. Over-all, the 1960 pig crop was down 11% from

(Turn to PIG CROP, page 65)

Central Soya Reports Sales, Earnings Up

FT. WAYNE, IND. — Increased earnings and sales over the corresponding quarter of last year were announced for Central Soya by Harold W. McMillen, board chairman, in a report to stockholders on the company's first quarter which ended Nov. 30, 1960.

Mr. McMillen said that after provision for federal and state income taxes in the amount of $1,165,367, net profits of $1,116,406 were earned in the first quarter. This is a 32% increase over the net of $848,390 earned in the first quarter a year ago.

Net sales for the first quarter amounted to $66,609,783, a 4% increase over the $64,325,017 recorded for the corresponding three-month quarter in 1959.

Per share earnings for the first quarter were 40¢ (based upon 2,790,-

(Turn to CENTRAL SOYA, page 68)

John MacMillan, Jr., Cargill Chief, Dies

DURHAM, N.C.—John H. MacMillan, Jr., board chairman and chief operating officer of Cargill, Inc., nationwide agricultural products firm with headquarters in Minneapolis, died here Dec. 23 after a month-long illness.

Mr. MacMillan was first stricken Nov. 23 at his home near Wayzata, Minn., and was taken to a Minneapolis hospital. Two weeks ago he was

(Turn to DEATH, page 68)

FDA Outlines Its Interpretation Of Controls on Concentrates

WASHINGTON — The Food and Drug Administration view that feed concentrates containing new drugs are subject to FDA controls all the way through final mixing into finished feed was reaffirmed in an FDA official's statement released this week.

The statement outlines the "obligations and the responsibilities of a manufacturer of concentrates containing new drug(s), and the responsibility of the feed dealer, custom mixer and/or feeder who uses concentrates for further mixing."

(Also see text of the FDA statement on page 3.)

The FDA official said, among other things, that shipments of new-drug concentrates "can only be covered by a new drug application (NDA) or supplemental NDA made effective for a specific finished feed mixed by a specified feed mill or feeder on a showing that the finished feed is safe by reason of its composition for use as directed in its labeling."

The statement released this week

(Turn to CONCENTRATES, page 8)

Formula Feed Unit Expanded by Fruen

MINNEAPOLIS—Expansion of the formula feed division of Fruen Milling Co., Minneapolis, has been announced by Sheldon Johnson, president of the cereal and feed-producing concern.

Lowell L. Smith was appointed sales manager of the division, while Don I. Frankhauser was named field representative.

The appointments are the first in a series of expansion moves planned by Fruen Milling. More personnel will be hired, and new markets opened, said Mr. Johnson.

"With the addition of two new and experienced men," he added, "we are especially optimistic about the growth of our formula feed division."

The division sales manager, Mr. Smith, is a specialist in the areas of commercial and mixed feeds, feedstuffs, animal health products, vitamins and antibiotics.

For the past eight years, he was employed by Rath Packing Co., of Waterloo, Iowa. He was in the feed

(Turn to EXPANSION, page 69)

Sec. Benson Warns: Hatch Expansion Should Be Tempered to Hold Prices

WASHINGTON — Weakened egg prices after mid-1961 are a likely ultimate consequence if indicated sharp expansion in egg-type chick hatchings are not tempered soon. This warning was issued this week by Ezra Taft Benson, secretary of agriculture, in a critical reference to the U.S. Department of Agriculture's latest hatchery report which predicts that this December's egg-type hatchings will be 40-50% greater than in December, of 1959.

Sec. Benson said he fears that the report is indicative of a trend toward unduly large increases in coming months and could lead to sharply expanded egg marketings when pullets being hatched begin to lay.

(The Poultry Survey Committee last week predicted that the egg-type chick hatch during the first half of 1961 would be up 10-12% over a year earlier. (Feedstuffs, Dec. 17, page 1.))

USDA's monthly hatchery report issued Dec. 15, summarizing activities in approximately 4,200 commercial hatcheries in the U.S., showed that on Dec. 1 there were 43% more eggs in incubators for the production of

(Turn to HATCH, page 68)

Expect FDA to Push Additive Exemption

DES MOINES — The Food and Drug Administration is expected to push proposed legislation to amend the food additive law to exempt from the Delaney anti-cancer clause feed additives which do not cause cancer during the lifetime of the animal at the recommended use level and which do not leave residues in animal tissue, according to the Animal Health Institute.

Similar legislation was proposed by FDA months ago, but no such legislation was ever introduced in Congress. An institute bulletin said, "FDA-ers undoubtedly will seek early backing" for this legislation from Abraham Ribicoff, secretary-designate of health, education and welfare.

The publication states that at the present time the Delaney clause exemption for no-residue feed additives appears to be "an answer" to some of the critical problems plaguing the veterinary drug and feed industries. The bulletin holds no real chance

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FEEDSTUFFS®

The Weekly Newspaper for the Feed Industry

Published by THE MILLER PUBLISHING CO.

2501 Wayzata Blvd., Minneapolis, Minn.

Address Mail to: Box 67, Minneapolis 40, Minn.

Telephone FRanklin 4-5200 - All Offices Serviced by Bell System Teletype

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Correspondence regarding subscriptions, changes of address, etc., should be sent to Circulation Manager, Feedstuffs, Box 67, Minneapolis 40, Minn. Single copies 50¢. Subscription rates: One year $5, two years $8, in the U.S., U.S. possessions, Canada and Pan-America. Add $3 a year for postage to other countries. Readers are urged to give prompt notice of change of address and to anticipate future changes by at least three weeks' advance notice. Ask postman for form 22-S. Feedstuffs accepts subscriptions only through its own offices; no subscription solicitors are employed or recognized. Associated publications: The Northwestern Miller, The American Baker, Milling Production, Croplife, Farm Store Merchandising, Feedlot and Professional Nursing Home. Second-class postage paid at Minneapolis, Minn.

The regional circulation of this issue is concentrated in the northeastern states

Top of the Hopper

THE FOOD AND DRUG ADMINISTRATION is out with some firm statements (Feedstuffs, Dec. 17) about the necessity for compliance with new drug and antibiotic regulations by feed manufacturers and also veterinariens. Previously it had been thought—and with some basis for such thoughts because of statements by FDA officials—that veterinarians could prescribe medications in feed when needed, which in some cases possibly would skirt the strict clearance requirements which affect some feed additives. Now FDA says this isn't so, and one wonders how veterinarians are going to react to this approach.

It seems likely that there might be some objection to being told, in effect, that they cannot prescribe as they see fit, in accordance with ethical standards and their knowledge of disease and drug usage.

The situation probably isn't strictly comparable, but the approach seems something like requiring one's physician to have clearance for an antibiotic prescription in combination with a vitamin pill, as aspirin and poached egg (in case you are eating, too) before he can try to make you well.

THE BIG INCREASE in December egg-type chick hatchings (50% above last year) brings a warning from Agriculture Secretary Benson that continuation of this trend will weaken egg prices in mid-1961. Feed men, particularly those in the Midwest whose tonnage totals have been whacked by declining egg feed business, could see improvement in starter feed business in early 1961. But if expansion gets out of hand they had better be sure to collect for the starters before the egg market hits the skids.

WHO IS BETTER qualified to add a new word to the English language than an Englishman? Here's a candidate for the feed man's dictionary provided by Geoffrey Sykes, of the Godwins firm in Great Britain: "Agri-vation—the science of rubbing agricultural economics up the wrong way."

A typical "agri-vation," he says, is the tendency of the livestock industry to "put most of the livestock up on wheels and truck them about over the island just for the heck of it. Farmers play a game of 'general post' with their animals at the cost of cluttering up our roads with thousands of trucks for the minimum of rhyme or reason—an effective method of spreading animal diseases and of increasing the stresses and reducing the production of our farm animals," he continues. "This game has been started by our pedigree-breeders—those playboys of stock improvement—and then the game is strenuously pursued by farmers 'round centres called markets.

"I estimate that probably 2% of our animal industry is on wheels every working day throughout the year. I estimate that as vertical integration develops in our animal industry, it will be found that only 20 to 25% of today's truck mileage of livestock is a necessary cost. In the farmers' game called 'markets' at long last we are seeing the construction of great new modern livestock markets sprouting up all over Britain, our animal industry is being quite oblivious of the fact that within two decades farmers will not be going to such circuses. Computers will become the great tool of agricultural marketing, just as they are today becoming the great tool of stockbroking. You can find similar expensive ploys if you dissect most agricultural practices."

Mr. Sykes, who made these comments at a recent meeting of the British Broiler Growers Assn., pointed out that the broiler industry in Britain is making big strides because of integrated efforts to improve marketing, select the best stains of birds and other methods pioneered in the U.S. (Mr. Sykes, by the way, is writing a book, "The New Poultry Industry," and is looking for pictures to illustrate it, which he promises to properly acknowledge.)

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How's Business?

AN EVERY WEEK REVIEW OF FORMULA FEED BUSINESS VOLUME, INCLUDING PRICE, SUPPLY AND DEMAND TRENDS

Frigid temperatures and snowfall in most of the important feed consuming states did much to create a good and steady demand for feedstuffs this week. Feeds for dairy cattle were reported to be moving especially well—and there was an upturn noted in hog and beef cattle feeds.

Reports of how feed volume during December of this year will compare with the same month of 1959 are quite mixed. But it is expected that nationally there will be little difference.

Corn prices are climbing and hog prices have settled down, as indicated by the continued drop in the hog-corn ratio. This week's ratio was 17, down .6 from the week before but still well above the 10.7 mark of a year before. The U.S. Department of Agriculture said the wholesale feedstuff price index went up 1.9 to 77.4 this week, compared with 82.3 a year ago. A gain of .2 was recorded this week in the feed-grain index. At 60.2, it was below the 63.7 ratio of a year ago. (Feed markets in detail on pages 66-68.)

Northwest

Sub-zero weather, expiring contracts on booked feeds, favorable livestock, poultry and egg prices, and a continuation of a run-up in ingredient prices are contributing to greater movement of formula feeds in this region.

December is a big feed sales month in this part of the country and the cold, cold temperatures are making this year's December no exception. For some manufacturers, hog feed sales have spurted. Dairy feeds are in very good demand. Consumption of beef cattle and poultry feeds remains good.

The "up" market in ingredients has inspired dealers and producers to lay in new feed supplies. Manufacturers report that formula feed prices will be marked higher again because of rising component costs.

One manufacturer said the Dec. 31 expiration date on cattle feed bookings has been a factor in dealers cleaning up orders.

General feed demand and production appear to be on the upswing, but feed men held the opinion that the two holiday weeks—each a day short for production—would not present a special problem. Manufacturers have been keeping up with the increased demand—some with only slight changes in manpower and running time, others with fairly large expansion in production efforts.

Central States

Demand for commercial mixed feeds does not seem to have lost any material amount of its momentum of the past two or three weeks and on the basis of what has taken place during the first two thirds of the month, December is going to be racked up as a pretty good month from the standpoint of sales volume. There have been better Decembers, it's true, but, likewise, there have been others that have not shaped up nearly as well as the one now drawing to a close. Plants are running on a full 40-hour week schedule or better for the second successive week.

As the calendar year nears it end, the usual mixed situation is maintained, with respect to the matter of inventory replenishment on the part of feed stores and other distributors—some wishing to whittle down to the bone and others doing just the opposite. This year, however, there seems to be more of the latter than the former.

In any event, all lines are moving in a seasonal way or slightly better.

Hog feeds are probably doing the best of the lot with tops of around $19 maintained at Chicago, but there is also a good call for broiler and egg mash feeds. With the sharp dip in thermometer readings and widespread snow covering, cattle are moving in off the range and feed lots are filling up. This is a prelude to a material pick-up in cattle feed demand in the relatively near future. Up to now, however, the change in the weather has been of too recent occurrence to have had any noticeable impact on demand.

Northeast

Continued cold weather and frequent snowstorms gave formula feed demand an added impetus and mixers had to step up their running time to cope with increased sales.

Dairy feeds accounted for the bulk of the tonnage. But a good deal of the turnover is centered in high protein feeds to mix with corn and oats on the farm. This type of sale is also true of poultry feeds, which are made into egg mashes.

The over-all effect is a sharp cut in the mixers' tonnage. Mixers are selling only a half or a third of a complete feed and farmers are supplying the rest.

Some broilers are being fed and demand is holding up well, but turkey feeds have undergone their seasonal slump.

Egg prices held steady. But broilers were off ½@1¢ lb. and now have reached levels where it is difficult for small growers to make a profit. Some ingredients made fairly substantial advances during the week.

Mountain States

Feed business in Colorado seems to be ahead of this same time last year. Cattle feeding is reaching a good peak and turkey feeds are moving well.

Prices generally are a little lower, but feed volume is higher.

Cattle feedlots are filling up. The weather is typical for this time of year—ranges are covered with snow.

Ohio Valley

Formula feed business in the Ohio Valley during this pre-Christmas week, while not booming, was in sufficient volume to provide the holiday spirit that is supposed to prevail on the eve of the new year.

While some manufacturers reported that sales were continuing at about the level noted during recent weeks, others said they were booking an increased volume of orders, largely because of the severe winter weather currently blanketing the valley area.

As is to be expected during this holiday season, retail sales of poultry and eggs are at peak levels, but supplies were said to be sufficient for requirements, thus holding retail prices steady.

However, significant price increases for a number of formula feed ingredi-

(Turn to MARKETS, page 71)

New Drug Feed Industry Obligations

FDA Regulations on Manufacture and Use of Concentrates Containing New Drugs

By Julius Hauser
Food and Drug Administration

EDITOR'S NOTE: *As reported previously, a feed industry liaison committee—made up of representatives of the American Feed Manufacturers Assn. and the Grain & Feed Dealers National Assn.—met Nov. 18 with Food and Drug Administration officials in Washington. What were considered the "most startling statements" at the meeting were made in a paper by Julius Hauser of FDA. This dealt with responsibilities of feed manufacturers and mixers in regard to concentrates containing new drugs. Dr. Hauser's statement was just cleared for release this week by FDA and was distributed in a bulletin from GFDNA. The accompanying article is the text of the paper. Feed men will be interested in this as well as a story and the text of a Midwest Veterinary-Nutrition Conference talk by another FDA official in the Dec. 17 issue of Feedstuffs. Dr. Hauser is assistant to the medical director, Bureau of Medicine, FDA.*

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The subject for this discussion is obligations and responsibilities of a manufacturer of concentrates containing new drug(s) — responsibility of feed dealer, custom mixer, and/or feeder who uses concentrates for further mixing.

It is understood that we are concerned with obligations and responsibilities for compliance with the Federal Food, Drug and Cosmetic Act. We are going to assume that manufacturers, dealers, mixers and feeders know a lot more than FDA about their other obligations and responsibilities.

It is understood that "concentrates containing a new drug(s)" means for the purpose of this discussion preparations containing one or more new drug substances in such a concentration that the preparation is intended for mixing with feed before it is fed to the animals. In these circumstances the "concentrate" or the finished feed containing the concentrate or both are "new drugs" as defined in the Food, Drug and Cosmetic Act. Because it is intended to be added to animal feed, the concentrate as well as the feed containing it, is a food within the meaning of the Act. Further, because of the similarity between the definitions of the terms "new drug" and "food additive" as articles not generally recognized by experts to be safe, both the concentrate and the feed containing it may also be "food additives" as defined in the Act, and both are definitely subject to the food additive provisions of the Act. A limited exception to this statement may be recognized in the case of those particular medicated feeds which are still new drugs but for which NDA's became effective prior to the enactment of the Food Additives Amendment. The exemption of these articles from the food additive provisions under the "grandfather clause" has been discussed separately.

Concentrate Manufacturer

Let us now consider the obligations and responsibilities under the Act of a manufacturer of concentrates containing one or more new drugs. It is his obligation and responsibility to avoid the shipment in interstate commerce of any such concentrate that is adulterated or misbranded or which is not covered by an effective new-drug application. Since the concentrate is both a food and a drug, he is responsible to determine that there is no adulteration or misbranding under both the food provisions and the drug provisions of the Act.

Let us first consider the manufacturers' obligation under the food provisions. Unless there is an effective exemption or tolerance under the Food Additives Amendment allowing the concentrate to be used as labeled or intended, it will be adulterated as defined in the Act. Again, the only exception goes to those concentrates shipped to a specific user and for a specific use covered by a new-drug application or an approval under the antibiotic certification provisions that became effective before the enactment of the Food Additives Amendment. The concentrate may also be adulterated under any of the other definitions of adulteration contained in section 402 of the Act.

Misbranding

The concentrate may be misbranded under any of the definitions of misbranding contained in section 403 of the food provisions of the Act which include among those of particular interest: If its labeling is false or misleading in any particular; if it is in package form unless it bears a label containing the name and place of business of the manufacturer, packer, or distributor; and an accurate statement of the quantity of the contents; if the label fails to bear the common or usual name of each ingredient.

In addition to the ways a concentrate may be adulterated or misbranded as defined under the food provisions of the Act, it may be adulterated or misbranded under similar drug provisions or any of the following pertinent definitions: If its strength differs from or its purity or quality falls below that which it is purported or represented to possess; if its labeling fails to bear adequate directions for use and adequate warnings against unsafe dosage or methods or duration of administration or application in such manner and form as are necessary for the protection of users; if it is dangerous to health when used in the dosage or with the frequency or duration prescribed, recommended, or suggested in its labeling; if it is, or purports to be, or is represented as a drug composed wholly or partly of any kind of penicillin, streptomycin, chlortetracycline, chloramphenicol or bacitracin, or any derivative thereof unless it has been certified or has been exempted from certification.

Food Additive Rules

We may summarize these provisions of the Food, Drug and Cosmetic Act by stating that the manufacturer of concentrates containing one or more drugs is responsible for complying with the Act. In order to comply he is obliged to see that the preparation he ships in interstate commerce is safe and suitable by reason of its composition for the intended use and that it is labeled truthfully and informatively. Further, he is obliged to determine that each shipment of his preparation is covered by an effective new-drug application or the similar clearance under the antibiotic certification provisions. The processing of a new-drug application by FDA to cover the use of the concentrate will include consideration of the various food and drug provisions of the Act and regulations relating to composition and labeling and as a result assist the manufacturer in meeting his responsibility to comply with the law. Among other things that may be mentioned in this connection, when a new-drug application involves the use of a drug in a way that also causes it to be a food additive, the application is also considered to be and processed as a petition for a food additive regulation when required. In fact when a food additive regulation is required to legalize the proposed use of a drug, a new-drug application cannot become effective until the food additive regulation is issued.

After a new drug application has become effective, the manufacturer of a concentrate has an obligation to observe the conditions of that application with respect to the manufacture, control and labeling of his preparation. He is responsible for avoiding any violation of the Act that may be associated with the shipment of the concentrate under conditions contrary to the provisions of the effective new-drug application. Stating this in another way, he may be held responsible for violating the food and drug provisions of the Act if he ships the concentrate in ways not covered by an effective new-drug application.

Use of Concentrates

Let us now consider the ways in which an effective new-drug application may cover the shipment of a concentrate containing one or more new drugs. First, let us suppose that the concentrate is a preparation that is shown to be safe for farmers to use directly by addition to the feed of their livestock or poultry. In this case the concentrate may be regarded as a finished dosage form of a drug and an application may be made effective for it with labeling bearing appropriate directions and warnings for its use by farmers.

Such an article manufactured, controlled, packaged and labeled in accord with the effective NDA, and not otherwise adulterated or misbranded, may be legally shipped in interstate commerce directly to farmers or indirectly through usual trade channels for use by farmers as directed in its labeling. It may not, however, be used otherwise for manufacturing, mixing, repacking or relabeling without risk of violating the Act.

"For Manufacturing Use"

We have considered the case when a "concentrate" is the finished dosage form of a new drug. Perhaps of greater interest and concern to you is the more common case when the concentrate containing a new drug cannot be shown to be safe for use as is by the farmer, but is intended for manufacturing use. Such concentrates must be greatly diluted by thorough mixing with relatively great quantities of feed before they are safe for use. Such mixing is commonly performed by feed mills and some large-scale feeders who have similar mixing equipment, and facilities adequate to control the uniform and appropriate dilution of the new drug substances. The safety of the animals to whom such new drugs are fed and of the consumers of meat, milk, and eggs derived from these animals depends on the proper composition and labeling of the finished feed supplied to the farmer under these circumstances.

For this reason, although the manufacturer of a new-drug concentrate intended for manufacturing use cannot legally market it in interstate commerce unless it is covered by an effective NDA, the FDA does not permit an NDA to become effective for a concentrate intended for manufacturing use. Shipments of such a concentrate can only be covered by an NDA or supplemental NDA made ef-

(Turn to OBLIGATIONS, page 71)

Indiana Convention Plans Announced

INDIANAPOLIS, INDIANA—The 50th annual convention of the Indiana Grain & Feed Dealers Assn., Inc., is slated for Jan. 15-17 at the Claypool Hotel here.

Speaking at the three-day meeting will be Charles S. Force, president of the Grain & Feed Dealers National Assn.; Martin Serkin from the Secretary of Agriculture's office, Washington, D.C.; Dr. R. L. Kohls, Purdue University economist; Kenneth E. Lemons, board of tax commissioners, and William W. Peach, certified public accountant.

Dr. Kohls' subject will deal with farmers and how they choose their feed dealers; Mr. Lemons will discuss assessment of real and personal property in Indiana, and Mr. Peach will talk on various methods of depreciation on grain elevator storage and equipment. The grain and feed business in the '60's will be Mr. Force's subject.

Mr. Serkin will discuss the grain and feed business and its relation to the future role of government in agriculture. A sound film on "Foodpower;" provided by Central Soya Co., will also be shown.

Pre-convention registration will be held Sunday, Jan. 15, at the hotel from 8:30 to 9:30 p.m. A $5 registration fee, for men only, will be charged; wives will be admitted free, and they are invited to attend the ladies' luncheon Monday noon as guests of the association. A banquet, with entertainment, is planned for Monday night.

Room reservations at any local hotel should be made immediately, convention officials point out, because the Indiana legislature will be in session and it is difficult to obtain accommodations.

Cargill Oil Division Appointments Told

MINNEAPOLIS — Three assistant vice presidents have been appointed by Cargill, Inc. They are John J. Mogush, John N. Haymaker and Sam Aronoff, all assigned to the company's vegetable oil division.

Mr. Mogush joined Cargill in 1945. He was assigned to the oil division the following year and since 1952 has been engaged in soybean oil merchandising.

Mr. Haymaker came to Cargill's oil division in 1946. In 1950 he was transferred to the division's Chicago office and in 1953 returned to Minneapolis as a merchant of soybeans and soybean meal.

Mr. Aronoff joined Cargill in New York in 1950 and in 1953 was transferred to Minneapolis. Since 1955 he has been manager of Cargill's flax account.

Ralston Purina Ups Quarterly Dividend

ST. LOUIS—The board of directors of the Ralston Purina Co. increased the company's quarterly dividend from 30¢ per share of common stock to 35¢ at its meeting Dec. 16, 1960, according to Donald Danforth, board chairman.

The dividend is payable March 13, 1961, to shareholders of record Feb. 20, 1961.

At a shareholders meeting, four members of the board of directors were reelected to three-year terms. They are Eldred A. Cayce, L. B. Stuart, Randolph P. Compton and George W. Simpkins.

G. M. Philpott and L. C. Stevenson, retired Ralston Purina vice presidents, were reelected honorary directors for terms of one year.

K. C. FDA Office Notes Feed Actions

KANSAS CITY—The Kansas City district of the Food and Drug Administration has reported on several recent enforcement actions against feed products containing drugs.

One case dealt with the reported absence of a new drug application to cover a coccidiostat premix. Three others involved reported findings of drug levels well below declared amounts.

Alfred Barnard, Kansas City district director for FDA, said one action was seizure of a $7,500 shipment of a coccidiostat premix at an Iowa plant. The premix was shipped from Missouri. It had a label carrying the name of the Iowa firm—". . . Feed Premix, medicated for prevention of coccidiosis in chickens." FDA alleged that no new drug application had been filed. The seizure was made in November and notice of it published. No answer was filed immediately, it was reported.

The FDA allegation is that the product is a new drug introduced in interstate commerce and not covered by an effective new drug application.

Also reported was action on feeds shipped from a Nebraska plant to a Missouri outlet. FDA said a sample of an egg ration showed that it contained 3.64% of the declared amount of furazolidone and 19% of the declared amount of oxytetracycline. FDA said a sample of a pig and sow feed contained 66.56% of the declared amount of 3-nitro, and a hog supplement sample was said to have contained 36.8% of the declared amount of 3-nitro. FDA alleges that all of these feeds were adulterated on grounds of varying from declared strength, and the goods were seized.

The Kansas City office also reported directing the U.S. marshal in Omaha to seize a shipment of feeds from Missouri to Nebraska. FDA said a sample of a chick feed contained about 40% of the declared amount of furazolidone and a broiler feed contained about 72% of the declared amount of 3-nitro.

Action also was reported against a feed, shipped from Nebraska to Kansas, which FDA said contained about 45% of the declared amount of arsanilic acid.

Egg Prices Firm In Most Markets

Egg price increases of around 3¢ doz. were recorded at Chicago this week, but in most other major markets prices at mid-week were about the same as a week earlier. The general trend was a slightly stronger market nationally.

Arkansas reported a 1¢ drop in grade A large, while in Iowa the price for the same grade was 1@2¢ higher. St. Louis reported a 1@2¢ increase in A large, but most other grades were unchanged.

FUNERAL SERVICES

PLYMOUTH, N.H.—Funeral services for Roy L. Eastman, 57, former manager of the Newport and Plymouth offices of Wirthmore Feeds, Inc., were held at the Plymouth Congregational Church Dec. 16. Mr. Eastman, who died after a long illness, managed the Wirthmore establishment in Newport from 1941 to 1948. He later was transferred to the Plymouth branch.

WAREHOUSE FIRE

GAINESVILLE, GA. — A four-alarm fire damaged a warehouse of the Piedmont Poultry Co., at the Gainesville airport, causing several thousand dollars in damages. The building was filled with boxes of peanut hulls to be used for litter in poultry houses.

November Poult Hatch Up 28%

WASHINGTON — The commercial hatch of poults of all breeds was 28% higher in November of this year than in the same month a year ago, the U.S. Department of Agriculture reported this week. And, according to a count of eggs in incubators Dec. 1, the December hatches of each of the turkey breed classes will be larger than a year earlier.

The total hatch of all breeds in November was 2,471,000.

Poult hatch expansion indicated by comparing production during November of this year with November of last year was 70% for "other" heavy breeds (mostly bronze). Relatively few birds were involved, however, the month being a seasonally light hatch month for the class. The increase was from 376,000 to 641,000.

The hatch of heavy white bred poults during November, 1960, totaled 1,270,000, up 7% from November of last year.

Because the number of poults involved was far greater in the heavy white breed class than in the other heavy breed class, the increase, comparing November, 1959, with November, 1960, was 22% for the total of all heavy breed poults hatched—1,568,000 compared with 1,911,000.

During the months of January through November the heavy white breed hatch of 22,418,000 was up 14% from the same months of 1959. The aggregate hatch of other heavies, January through November, was 54,780,000—an increase of 6% from the same period last year.

Output of light breed poults in November totaled 560,000—up 54% from November, 1959. However, the January through November cumulative hatch of light breed poults at 10,822,000 was 29% below the same period a year earlier.

PENB Lists 1961 Promotion Plans

CHICAGO—The Poultry and Egg National Board's program of research, consumer information and promotion for 1961—described as being "geared to today's tempo of living"—was approved by the PENB board of directors at its recent meeting here.

Hailed as the "best constructed and sharpest directed program in years" by both board and committee members, the 12-month activity campaign is aimed at specific weakness in the egg and poultry meat eating habits of adults, teenagers and children, to stimulate greater demand for these products.

In announcing the board's unanimous approval of the program as presented by Lloyd H. Geil, PENB general manager, Ralph J. Thomas, president, listed several of its major objectives:

1. To persuade millions of people to realize that in most instances it is scientifically unsound to run away from eggs because of their cholesterol content.

2. To provide homemakers with easy-to-use information on what really constitutes a "good breakfast" and to encourage the return of millions to an adequate first meal in the day.

3. To glamorize all poultry products for the purpose of establishing sound habits for their more frequent use by teenagers and children—where lasting habits for using these foods must start to gain maximum volume from promotion dollars.

4. To satisfy consumer tastes for all poultry products by making available new twists to old recipes and creating new ideas for serving the products as main dishes at lunches, dinners, banquets and snacktime.

President Thomas stated that details for chieving these objectives were spelled out in mimeographed copies of the program distributed at the board meeting.

Listed among the major activities were the following:

1. Directing documented nutritional messages on eggs to physicians and dietitians.

2. Testing approximately 200 recipes for indoor and outdoor use at home and by mass feeding establishments.

3. Meeting increasing requests from the nation's food writers for accurate information on all poultry products.

4. Supplying the broadcasting industry with scripts, tapes or platters.

5. Providing newspaper mats for statewide use.

6. Making available to schools, by next September, a 13-minute film, in sound and color, with teenage appeal.

7. Giving food writers menu plans which incorporate tested recipe ideas described in PENB releases.

8. Conducting workshops in major cities for persons responsible for handling and serving food.

9. Giving related food firms an opportunity to tie-in their promotion programs with those of PENB for plus promotion dollar value.

10. Making available approximately 12 new educational and merchandising sales aids to help increase consumer demand.

All this adds up to about 5-billion sales impressions on consumers in 1961, declared President Thomas.

"They get these through the men and women—physicians, food editors, teachers, home economists, and food store managers—who influence the food habits of adults, teenagers and children. And the promotion keeps on working even after the dollar is spent to spark it," Mr. Thomas said.

From the 1961 estimated income to finance the approved program, 80% will be allocated to egg promotion, 9% to turkeys, 6% to broilers and 5% to ducklings. This is in line with the anticipated investments to PENB from these respective commodities based upon 1960 performance.

President Thomas also announced that Clay Thompson, Poehlmann Hatchery, Inc., Petaluma, Cal., was seated on the PENB board of directors at the Chicago meeting.

Mr. Thompson replaces Arthur Kimber, Kimber Farms, Inc., Niles, Cal., who is now serving his firm overseas. The new PENB director is one of 15 men representing the egg industry from all sections of the nation on the 36-member egg and poultry meats board.

PENB DIRECTORS AT WORK—Virtually all segments of the poultry industry are represented on the board of directors of PENB which met in Chicago recently. Those attending the meeting were, clockwise, outer side of table, Dr. A. W. Jasper, representing Stacey Cole, American Farm Bureau Federation, Chicago; Morris G. Smith, Dixie Lee Turkey Farm, Ellicott City, Md.; Harry A. Grant, Wirthmore Feeds, Inc., Waltham, Mass.; William T. Diamond, American Feed Manufacturers Assn., Chicago; Paul Benbow, James Manufacturing Co., Ft. Atkinson, Wis.; Dr. John G. Salsbury, Dr. Salsbury's Laboratories, Charles City, Iowa; Ralston R. Hannas, PENB treasurer, American Poultry Journal, Chicago; Dr. L. A. Wilhelm, PENB secretary, Quaker Oats Co., Libertyville, Ill.; Ralph J. Thomas, PENB president, DeKalb Agricultural Assn., Sycamore, Ill.; Lloyd H. Geil, PENB, Chicago; Howard Kauffman, PENB first vice president, Kauffman Turkey Farms, Waterman, Ill.; Clay Thompson, Poehlmann Hatchery, Inc., Petaluma, Cal.; John Randolph, Corn Belt Hatcheries, Hope, Ark.; Blanton Smith, Blanton Smith Hatcheries, Nashville, Tenn.; James C. North, Nutrena Mills, Inc., Minneapolis; M. C. Small, National Turkey Federation, Mount Morris, Ill.; and clockwise, inner side of table, Carroll Eiler, Eiler Poultry Farms, Warsaw, Ind.; Thomas R. Greenlee, PENB director of accounting services; Noel Shaver, Shaver's Hatchery, Inc., Crawfordsville, Ind.; Mays Montgomery, Dixie Home Feed, Athens, Ala.; John E. Copenhaver, Elizabethtown, Pa.; Sam Bush, Florida Egg Commission, New Port Richey, Fla.; W. J. Moore, PENB second vice president, Hy-Lay Hatcheries, Inc., Bryan, Texas; Harold Williams, Institute of American Poultry Industries, Chicago; Everett T. Conaway, Barker Equipment Co., Seaford, Del., and Robert L. Hogue, Indiana State Poultry Assn., Lafayette.

New Oklahoma Mill, Bean Plant Finished

MUSKOGEE, OKLA.—A new feed mill and soybean processing plant has been completed by the Cole Grain Co., Muskogee, and is now in operation. J. D. Cole is president and general manager of the firm.

The new feed mill increases the firm's production capacity from 100 to 200 tons per eight hour day. The plant has been remodeled to a bulk ingredient handling basis and is completely equipped for push-button control. The feed mill rebuilding was done by Forster Mfg. Co., Ada, Okla.

The new soybean processing plant is equipped with French expellers and is located in the same building as the feed mill. It can be operated by the same crew that runs the feed mill.

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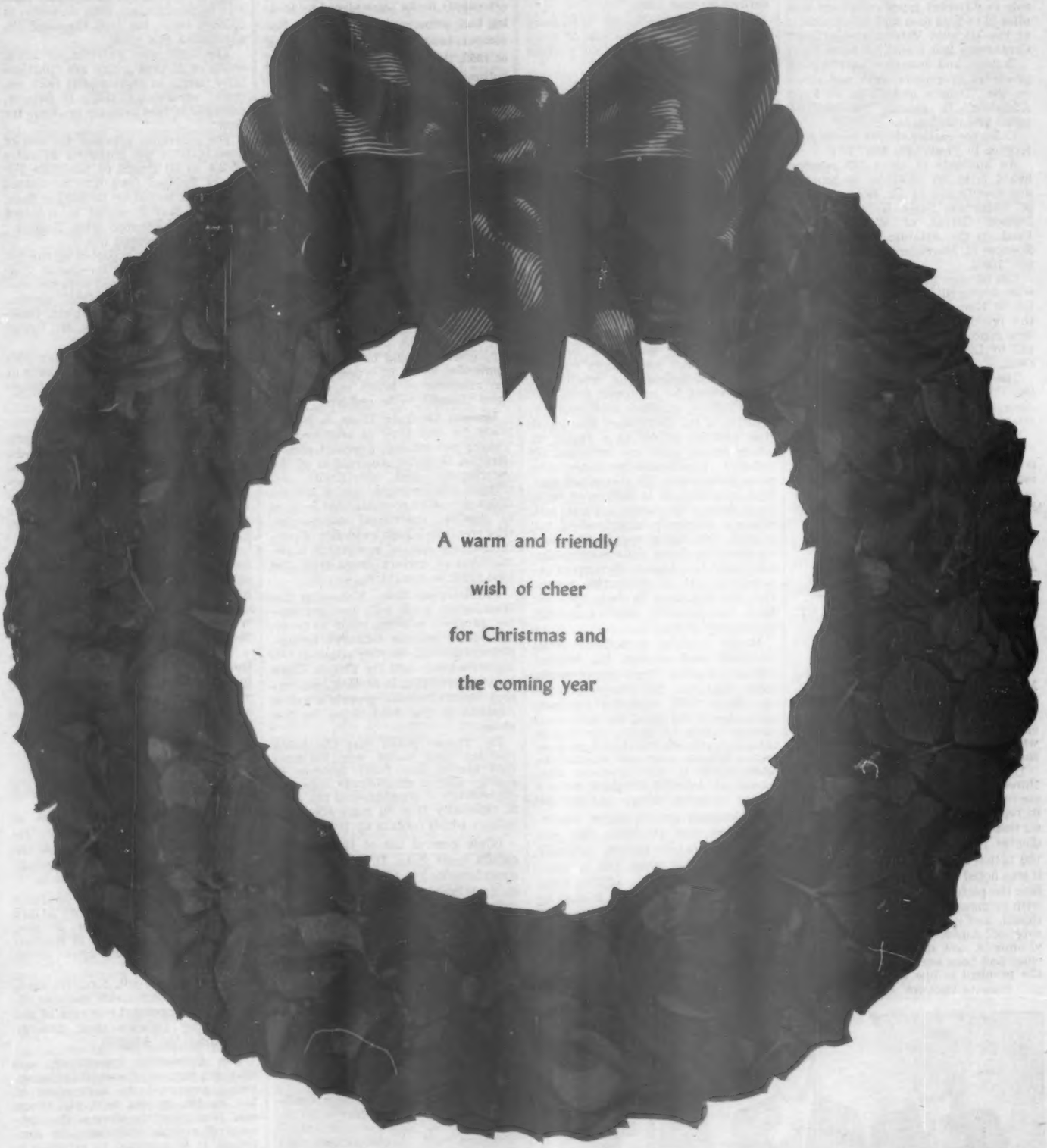

ARCHER-DANIELS-MIDLAND CO.
ALFALFA DIVISION
Box 356 Kansas City, Mo.

Nutritionists Discuss 'Dollars and Sense of Additives' at K.C. Event

By ROGER BERGLUND
Feedstuffs Managing Editor

KANSAS CITY—A broad look at the various feed additives and their role in different types of rations was offered to feed men and veterinarians at the Midwest Veterinary-Nutrition Conference last week in Kansas City.

College and industry nutritionists presented comments, data and views on the "Dollars and Sense of Feed Additives" in rations for poultry, swine and ruminants.

(Also see earlier stories on the conference in Feedstuffs Dec. 17.)

An audience of some 275 persons heard talks on additives in general, and specifically, by Dr. Rollin Thayer of Oklahoma State University; Dr. Damon Catron of Walnut Grove Products Co., Atlantic, Iowa, and Dr. Spencer H. Morrison of Agricon, Clinton, Iowa.

Use of urea in ruminant feeds also was discussed—by Dr Charles Norton of Kansas State University. And the relationship of nutrition to bovine reproduction was covered in detail by Dr. G. T. Easley of Sulphur, Okla.

The conference was sponsored by the Midwest Feed Manufacturers Assn. in cooperation with state veterinary medical groups.

Summaries of the talks follow:

ADDITIVES FOR POULTRY—"It is difficult to make general recommendations regarding use of additives in poultry feeds," observed Dr. Rollin H. Thayer, poultry nutritionist at Oklahoma State University. "The veterinarian and nutritionist must evaluate each individual situation on its own merits and make recommendations on that basis."

Dr. Thayer presented comments and suggestions on the use of additives in poultry rations for various purposes.

Nutrient Balance: Amino acids are one type of additive used to obtain nutrient balance. Methionine and lysine are now available in synthetic form at a price permitting their use in practical feeds, Dr. Thayer noted. He cautioned that the addition of amino acids to a ration, with no regard given to amino acid analysis of the ration, may accentuate marginal amino acid deficiencies, if such do exist, and decrease efficiency of ration utilization. The question of whether a given ration should be supplemented with these amino acids must be governed by actual dietary levels already present and their relationship to the dietary energy level.

Protein level, quality of protein, vitamin content and energy content are factors determining whether a ration would be improved from the nutritional or economic standpoint by addition of fat. Dr. Thayer mentioned that addition of fat to a ration in which amino acids are marginal or deficient may actually accentuate these deficiencies. He also noted that feed consumption is influenced to a large degree by energy content, and where a relatively high level of fat is used, this factor may reduce feed consumption. Since daily nutrient intake must be adequate to support inherent growth or production potential, the reduction in daily feed intake may actually depress growth or egg production.

Niacin, choline, pantothenic acid, riboflavin and vitamin B_{12} became routine poultry feed supplements some time ago, Dr. Thayer pointed out. Since 1955, nutrition advances have shown the need for additional dietary levels of biotin, pyridoxine, thiamine, vitamin C and perhaps para amino benzoic acid and inositol. In addition, it is now apparent that important interrelationships exist among vitamins, energy and protein.

Unidentified growth factor supplements are now available; they are known to contain factors naturally present in dried whey, fish solubles, fermentation solubles, alfalfa meal and yeast. Dr. Thayer said it must be recognized that natural sources of UGF supplements make a complex contribution from a nutritional standpoint, providing amino acids and critical vitamins. If no consideration is given to the nutritional contributions other than UGF, efficiency of rations from which the natural ingredients are eliminated may be impaired.

Data on which to base trace mineral requirements are still limited, Dr. Thayer said, and trace mineral supplements should be added at recommended levels in order to provide the minerals at levels in excess of those thought to be required.

Disease Control: There is a real place for this type of additive, Dr. Thayer pointed out, provided administration is under supervision of the veterinarian and nutritionist. He warned that improper use of certain drugs, where no consideration is given to possible nutritional deficiencies, may result in a high incidence of condemnations. Also of importance is elimination of certain drugs from the feed prior to slaughter.

Physiological Role: Following the Washington work with western barley, progress is being made in development of enzyme mixtures to supplement normal enzyme action in the digestive tract, said Dr. Thayer. More basic information is needed, but current research should provide a major advance in the next three to five years.

Dr. Thayer noted that Oklahoma research now under way indicates that use of live yeast cultures in poultry rations significantly improves digestibility of supplemental fat. This is especially true in high efficiency rations which contain up to 30% fat.

While general use of tranquilizers awaits more data, Dr. Thayer said, some benefits are to be gained in layer and breeder flocks under conditions of stress. The most promising application at present, he said, is in treatment of aortic rupture in market turkeys.

Practical means of controlling physiological functions relating to growth and egg production through hormone feeding may constitute one of the areas in which the greatest benefits will be derived from use of additives, Dr. Thayer commented. At present, one problem in hormone use is the government restrictions.

Dr. Thayer discussed stress conditions and noted that to counteract effects of stress, high levels of antibiotics are used in conjunction with increased vitamin supplementation.

Physical or Chemical Effects on Feed: Suitable antioxidants are being used extensively in feed grade fats to prevent oxidation and rancidity, Dr. Thayer noted.

Research has shown that emulsifiers in fats significantly improve digestibility of the fat for poultry, Dr. Thayer said. At present, he said, lecithin appears to be the best emulsifier available. High efficiency turkey rations being developed at Oklahoma contain supplemental fat levels as high as 30%, and emulsifiers are an essential ingredient.

Commenting on additives and poultry rations in general, Dr. Thayer

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Attention Focused On Vitamin A Problem in Cattle

KANSAS CITY — A talk at the Midwest Veterinary-Nutrition conference last week focused additional attention on the vitamin A problem in cattle feeding and new developments which have come or are expected in the way of research findings.

Dr. A. L. Neumann, University of Illinois beef cattle nutritionist, reviewed information on the increase in reports of trouble in the field and on research and experience which indicates that nitrates and nitrites in the ration seem to be involved. Also, it was noted that vitamin E may come into the picture. Possible interference with or damage to carotene was mentioned, and it was indicated that the rate of conversion of carotene to vitamin A now does not seem to be what had been assumed. At any rate, the problem is one of increased im-

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CONFERENCE SPEAKERS—Here are some of the scientists who addressed the Midwest-Veterinary Nutrition Conference in Kansas City. Front row, left to right: Dr. Rollin Thayer, Oklahoma State University; Dr. Damon Catron, Walnut Grove Products Co.; Dr. S. H. Morrison, Agricon. Second row: Fred Darragh, Darragh Co., Little Rock, president of the Midwest Feed Manufacturers Assn.; Dr. John Herrick, Iowa State University; Dr. Charles Norton, Kansas State University.

BROILER SUPPLY FLOCK PLACEMENTS UP 15%

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WASHINGTON—Fifteen per cent more pullet chicks for broiler hatchery supply flocks were placed by leading U.S. primary breeders during November, 1960, than in the same month of 1959, the U.S. Department of Agriculture said this week.

The domestic total of 1,956,000 chicks for this November was 4% under the placements of November, 1958.

Total placements (domestic plus exports) last month were reported at 2,233,000 compared to 1,842,000 a year earlier and 2,153,000 in November, 1958.

Dow Receives O.K. On Use of Zoamix With Penicillin

MIDLAND, MICH.—The Food and Drug Administration has issued a new food additive order which provides for use of the coccidiostat Zoamix in combination with penicillin in chicken feeds, the Dow Chemical Co. announced this week.

The order also provides for lower levels of Zoamix which are "particularly useful in replacement flock rations," according to Hollis H. Brower, manager of feed industry products for Dow.

The clearance provides for use of Zoamix with the antibiotic at rates of 2.4 to 50 grams of penicillin per ton of finished feed. The medicated ration can be fed up to market time. "No withdrawal period is required for feeds medicated with Zoamix," Mr. Brower pointed out.

FDA action is expected in the future on applications for use of Zoamix in feeds medicated with chlortetracycline, oxytetracycline, manganese, bacitracin, oleandomycin, Gallimycin and zinc bacitracin, Mr. Brower said.

The current order also provides for use of Zoamix in chicken feeds at lower levels, appropriate for replacement flock rations.

Approved Levels

Approved levels range from .0125, the established level for broiler birds, down to .0063%. The range of concentrations will permit the adjustment of the level of medication according to the degree of exposure the birds are subjected to, the Dow official said.

"This provision will permit poultrymen to secure protection against coccidiosis in both broilers and replacement birds from a single coccidiostat," Mr. Brower said.

Dow introduced its coccidiostat to the U.S. trade last May.

"In addition to offering protection from coccidiosis to birds on medicated feeds," Mr. Brower said, "the use of Zoamix does not prevent the development of natural immunity to the disease."

Two ADM Executive Promotions Told

MINNEAPOLIS — Promotion of two Archer-Daniels-Midland Co. executives was announced by E. A. Olson, executive vice president-agricultural group.

Ellis D. English, a vice president and long-time manager of ADM's Commander Larabee flour division, was named vice president of marketing for the agricultural group, effective Jan. 3.

Lawrence J. Weidt, formerly manager of the Commander elevator division, was appointed manager of the Commander Larabee flour division, succeeding Mr. English.

The increasing importance and changing pattern of agricultural marketing prompted the assignment of Mr. English to this field, Mr. Olson said. Because of the scope of the agricultural group's operations, he continued, it is essential to establish a group marketing vice president to complement the work of the corporate marketing office in broadening ADM's agricultural marketing activities.

Mr. Olson said that Mr. English's responsibilities will include studying and recommending improvements in the group's sales and distribution policies and methods. He also will be responsible for customer and industry relations for the agricultural group, and will assist division sales managers with their marketing problems.

ADM's agricultural group includes the company's flour milling, soybean, linseed, grain and dehydrated alfalfa divisions and ADM's formula feed operations in Mexico.

Thyroactive Compound Research Attracts Increasing Interest

By MARTIN E. NEWELL
Feedstuffs Staff

KANSAS CITY — Work underway at various experiment stations and colleges on feeding of thyroactive compounds to livestock was discussed at an invitational seminar in Kansas City Nov. 14. About 25 scientists interested in this field were present at the meeting, which was sponsored by Agri-Tech, Inc., Kansas City.

It was evident from the discussions that there is a growing interest in this field, and a substantial amount of investigation is now going on. As yet only tentative conclusions can be reached on most of these studies, but results from some of the experiments appear very promising and in some basic areas understanding of hormone activity has recently been considerably advanced.

Dr. Charles W. Turner, University of Missouri, in a discussion of the interrelation of optimal thyroxine levels on other endocrine secretion rates, reported that it is now possible to make actual quantitative estimates of cell growth in certain circumstances, through measurement of DNA, and with this method of evaluation to reproduce natural growth results with specific hormone treatments. In experiments at Missouri with rats, he said, it has been shown that mammary glands continue to grow throughout pregnancy and make a further spurt in the early states of post-partum lactation. With the administration of estrogen and progesterone in the right amounts it has proved possible to grow glands with as high DNA as in pregnant animals.

Under normal conditions, Dr. Turner said, the addition of 3 mcg. of thyroxine brings about growth of mammary glands 25% greater than in the control animals. However, in the experimental work with estrogen and progesterone this extra growth was not obtained from thyroxine until the estrogen and progesterone were doubled. By the addition of other hormones controlling growth, milk letdown and lactation, it has been possible to increase milk production in these animals by 84%.

Milk Stimulation

Dr. Turner said that by new techniques, it is possible to determine how much parathyroid hormone is needed for active lactation. This hormone now can be added to the combination mentioned above to learn if further stimulation of milk production can be obtained. He mentioned that a substitute for parathyroid secretion —an irradiated sterol called AT10— is now available and might be administered orally to animals in intense lactation.

Dr. Turner emphasized the point that growth and lactation are not dependent on any one hormone, but on a series of them. This, he said, is the reason for variable results in experimentation. The animals that respond the best to an individual hormone treatment are those which have the other hormone factors in adequate amounts.

Dr. Turner said he believes that the estrogens stimulate an increase in the secretion of thyroxine during lactation and also increase the lactogenic hormone and may also have an effect on the secretion of the growth hormone. A lack of thyroxine depresses the level of growth hormone, he said. In the declining phase of lactation, he said, thyroxine secretion goes down as does the lactogenic hormone. This has been confirmed in recent experiments at the Tennessee medical school, he said. It is a reasonable postulate, he added, that by holding thyroxine levels up the lactogenic hormone may be sustained also.

Recent experiments at Missouri have shown that the ability to secrete hormones at various levels is heritable, and Dr. Turner said it should be possible to breed animals with a high level of thyroxine secretion. He also said that there is a fundamental need for information on the thyroxine secretion rates of various species, breeds, strains and individual animals, so that optimum levels of thyroxine can be used in feeding. He urged those doing swine research in this field to develop data of this kind.

Natural Secretion Rate

In dairy cattle feeding at Missouri, Dr. Turner said that it has been found that the natural secretion rate of thyroxine varies within a range of 2 to 10 mg. per day per 1,000 lb. of body weight and that the mean level is 6 mg. These are winter values; in summer the levels decline two thirds, which puts the mean at 2 mg. The summer feeding problem is quite important, he said. With two different strains of fowl at Missouri it was found that one had a mean secretion rate of 1 mcg. per 100 gm. of body weight and the other a mean of 3 mcg. In the summer time the secretion rate of the low level birds was depressed 40% and of the high level birds 50 to 60%.

Dr. Turner said he was puzzled by the low rate of absorption (10-15% in ruminants) of thyroxine administered orally as compared with injection. Early studies at Missouri indicated that this loss did not occur in the rumen. He said observations had shown that it takes about four hours from the time of injection of thyroxine until iodine gets back to the thyroid gland.

Swine Feeding Trials

Successful trials in feeding of thyroprotein to swine at Michigan State were reported by Dr. E. Paul Reineke of the department of veterinary medicine, who said that the maturation of animals was stimulated by the hormone to the point where the pigs were ready for slaughter a week to 10 days before the controls. There was no difference shown in carcass composition, he said. There was a feed conversion gain of about 5%. In this trial Dr. Reineke fed a level of 2.8 gm. per 100 lb. of feed.

Dr. Reineke presented a chart to show how the secretion rates of thyroxine vary from summer to winter. The chart showed levels are quite low in summer and step up sharply in colder weather to a peak level in spring.

There is also a variation in the secretion rates based on animal weight. On the surface this appears to be variation without pattern, but Dr. Reineke said there is a consistent ratio on an exponential basis of body weight raised to the 0.73 power.

Dr. Reineke also presented slides showing the dependence of fur growth in mink on thyroid production. He commented that in oral administration, only about 10% of the thyroxine is absorbed in ruminant animals, while about 30-33% is available to monogastric animals.

Tests with Sows

Dr. Vaughn Speer of Iowa State University reported on a number of experiments with thyroid powder, thyroactive compounds and iodinated casein for lactating sows. He showed that in several trials at Iowa with different thyroactive materials, lactating sows did better than controls in birth rates, pigs per litter and farrowing losses. He said that many sows in the Iowa herd have had thyroprotein in their rations for as many as 6-8 farrowings and no problems have shown up. Although the sows lose more weight during lactation when on the thyroprotein, the weight is regained rapidly and there are no after effects, he said.

Tennessee Study

Implants of sodium L-thyroxine in growing pigs were used in trials at the University of Tennessee by Dr. Sumner Griffin who said the studies were undertaken to see if leaner carcasses might be produced by thyroxine and also if the male hormone testosterone would accomplish this. In the latter case, methylandrostenediol (MAS) was fed in order to avoid some of the side effects of testosterone.

In the two trials reported with the additives at three different levels, differences in carcass characteristics were not significant (5%). However, the pigs getting the MAS had more lean cuts than the controls. The differences in average daily gain and feed per 100 lb. gain were not significant, but Dr. Griffin noted that there was substantial feed wastage due to the small pen confinement.

Nebraska Pig Tests

Dr. Ernest Peo, University of Nebraska, said it had been noted previously that a corn-soy diet supplemented with B_{12} was not adequate for baby pigs. Experiments at Iowa State, he said, have approached this problem from the standpoint of enzyme supplementation. Dr. Peo said Nebraska scientists have tried to increase the metabolic rate in another way through thyroid stimulation. Much future work will be done in this direction, he said.

In the trials, Dr. Peo reported, the best gains were attained at thyroxine level of 20 mg. per 100 lb. of feed, although over-all a 30 mg. level was the optimum, he said. Implants were used effectively at a 5 mg. level, also.

In some studies with amino acid supplementation, when lysine was added a depressing effect on growth was noted and the addition of thyroprotein increased this depression. There was some response with methionine which the thyroprotein extended further. With methionine plus lysine, the best results were obtained and the thyroprotein was effective in increasing gains with these amino acid additions. Dr. Peo said it was obvious that methionine was the first limiting factor in corn-soy rations.

Dr. Peo also said that work by Dr. G. E. Combs at the Florida station with corn-soy rations got good results with the use of 20 mg. of thyroprotein and .25 mg. of cortisone. Depression in gains was noted at higher levels of cortisone. He said there

(Turn to RESEARCH, page 69)

GIFT TURKEY — "It's heavy," exclaims pretty Janet Kyrola, secretary at International Milling Co., Minneapolis, as she lifts her 20-lb. Christmas turkey, a gift from the company. Janet was among the more than 4,300 company employees who had their choice of either a large turkey or ham at both Christmas and Thanksgiving, a practice instituted by the company over 50 years ago and continued ever since. Over 130,000 lb. of turkey and ham were distributed to employees at plants and sales offices in the U.S. and Canada during the Thanksgiving and Christmas seasons.

R. Hendrickson Heads Larro Southern Sales

MINNEAPOLIS — Appointment of Roland M. Hendrickson as regional sales manager for the southern region of the Larro feed division of General Mills has been announced by E. J. Slevin, director of sales of the feed division.

R. M. Hendrickson

Mr. Hendrickson was product manager for laying feed and egg merchandising in the feed division. He has been with the company since June, 1954. At present, Mr. Hendrickson is chairman of the new products development committee of the Poultry & Egg National Board.

A graduate of the University of Minnesota, he majored in ag-education and minored in animal husbandry. He taught chemistry, poultry husbandry, soils and grain judging after his graduation from the university.

The new assignment will headquarter him in Hot Springs, Ark. He will assume duties of the late Raymond J. Higgins.

Strong Demand Lifts Oilseed Meal Futures

MEMPHIS, TENN.—Prices of oilseed meal futures moved to the upside on the Memphis Board of Trade during the past week. Cold weather over the nation, bringing strong general demand for mixed feed, was a big factor in the rise of meals, brokers said.

During the last two days of the period, meals moved higher as the result of strength in soybean futures. This stemmed from the government report on the soybean crop for 1960.

One broker said immediate cash soybean oil meal developed a tight situation for the first time in many months. Export business was attracted in soybean oil meal for the December-January shipping periods, he said.

Cottonseed oil meal futures made fractional advances in quiet dealings. The boost was because of frigid weather.

Eastern Trunk Line soybean oil meal closed Dec. 20 unchanged to $2.50 per ton higher than on Dec. 13. Unrestricted soybean oil meal closed 15¢@$1 higher. Bulk solvent cottonseed oil meal closed unchanged to 25¢ higher.

Volume of meal traded included 3,500 tons of unrestricted soybean oil meal and 600 tons of bulk solvent cottonseed oil meal.

The December contract expired Dec. 20 in orderly fashion.

Norman Stark Heads CSC Western District

NEW YORK — Norman Stark has been named manager of the western district, animal nutrition department, Commercial Solvents Corp., according to an announcement by I. Roy Cohen, sales manager of the department.

Norman Stark

In his new capacity, Mr. Stark will supervise activities of salesmen operating in the 11 western states marketing Baciferm, a zinc bacitracin antibiotic feed supplement, as well as other CSC products for the nutrition field.

Mr. Stark has been associated with the feed industry for 10 years and for the past four years has been with CSC, covering the mid-Atlantic states and eastern Canada.

Ingredient Prices Continue Strong

Ingredient prices gained $1.30 ton on a national average basis from Dec. 14 to Dec. 21, the U.S. Department of Agriculture said this week. Leading the uphill parade were animal protein feeds, soybean meal and millfeeds.

Tankage and meat meal averaged more than $3 ton above a week earlier. Demand for these items was very active. In some markets the week's advance was as much as $6 ton. While there was no particular shortage of these feeds, there was no surplus on the market. Production of both tankage and meat meal was light.

Soybean meal averaged $2 ton higher in the nation's major markets. USDA said there appeared to be no shortage of offerings but demand continued to be strong and market outlets were good.

Cold weather has stepped up feeding and kept millfeeds moving at a brisk pace. In addition to satisfying current needs, buyers were building inventories for the expected improved feeding season ahead. The buildup in demand for millfeeds pushed the spot price somewhat above the deferred tag.

American Cyanamid Forms 2 New Regions

NEW YORK—Formation of two new sales regions for the Agricultural Division of American Cyanamid Co. has been announced by E. H. Smythe, marketing director. Effective Jan. 1, the present Midwest region will be divided into the west central and east central regions.

The west central region will be comprised of the states of Nebraska, North Dakota, South Dakota, Minnesota, Iowa and Wisconsin and will have its headquarters in Minneapolis. L. P. Zapalac will be the regional manager. District managers reporting to Mr. Zapalac will be John Reynolds, A. M. Brown and Mort McDonald.

States making up the new east central regions are Illinois, Indiana, Michigan, Ohio and Kentucky. The east central region will headquarter in Chicago and Dr. M. J. Harvey will be the regional manager. Assisting Dr. Harvey as district managers are T. J. Montgomery, E. E. Papizan, F. W. Overton and Don Lee.

Protein Blenders Names Chairman

IOWA CITY, IOWA—Charles Gorrell, 58, Cedar Rapids, has been elected chairman of the board of directors of Protein Blenders, Inc., Charles L. Kelly, president, announced.

Charles Gorrell

No other changes in executive personnel or policy changes are planned at this time, Mr. Kelly said.

Mr. Garroll succeeds C. Urban Kelly, founder of the company, who died Dec. 8. Mr. Gorrell has been a director and stockholder of Protein Blenders, Inc., since the business was started in 1947. He has done extensive farming, livestock feeding and farm management work, most recently of which was the management of the La Paloma farm at Orchard Lake, Mich., owned by Roy Fruehauf.

He was associated with the Fruehauf Trailer Co. as an executive from 1956 until 1958, when he came with Protein Blenders, Inc., as assistant to the president. He plans to move from Cedar Rapids to Iowa City in the near future.

Perry Unruh

Truitt Kennedy

Regional Feed, Grain Organization Formed

FT. WORTH, TEXAS—The grain and feed trade associations of Oklahoma, Texas and New Mexico have organized the Southwest Grain Council. The announcement said that the new organization was formed to facilitate exchange of trade ideas on a regional basis.

Clarence Worley

Each of the member state associations will maintain its own identity. Officers of the new council will be presidents of the state associations and other officers appointed by each organization.

Headquarters of the Southwest Grain Council will be at 504 Fort Worth Club Building, Ft. Worth, until the first annual meeting in 1961.

It is reported that the council will not adopt any program or policy except under unanimous agreement. While no formal budget is planned, there is agreement that any expenses incurred will be shared by the associations in proportion to the paid-up membership in each.

Truitt Kennedy, Ft. Worth, is president of the newly formed group. Vice presidents are Perry Unruh, Enid, Okla., and Clarence Worley, Clovis, N.M. Each is president of his member state association. Other officers will be added at the time of the annual conference and meeting, according to plans.

CCA Plant Manager

EAGLE GROVE, IOWA—Carl Greenberg, Ida Grove, Iowa, is the new manager of the Consumers Cooperative Assn., fertilizer and animal protein plant here, succeeding Gordon Hoath who resigned to build and operate a similar plant.

For the last three years, Mr. Greenberg has been manager of the CCA feed plant at Ida Grove. He had previously managed a CCA alfalfa dehydrating plant at Longmont, Colo., and a CCA fertilizer plant in St. Joseph, Mo.

Former Salesman Dies

DERRY, N.H.—H. Newton Shaw, former feed salesman, died Dec. 5 at a Manchester, N.H., hospital. Mr. Shaw had retired a few years ago after a number of years in the feed business during which time he covered most of New England at one time or another. Mr. Shaw for many years had been employed as a salesman for Louis Page Co., Concord, Mass.

He is survived by a wife, one son and one daughter.

Heads Traffic League

TORONTO—The election of J. W. Cargill, general traffic manager, Maple Leaf Milling Co., Ltd., as chairman of the Ontario Division, Canadian Industrial Traffic League has been announced here. His term of office will be for calendar year 1961.

Delmarva Broiler Prices Improve

SALISBURY, MD.—Broiler prices in Delmarva improved last week. The average price paid on the farm was 16.17¢ compared to 15.80¢ the week before.

Nationwide, for the 22 important broiler producing states, the egg set at 46,129,000 was 3% above the previous week and 3% above the corresponding week a year ago. Settings were up from the previous week in 16 of the 22 states.

Chick placements in the 22 states totaled 31,473,000 broiler chicks. This figure was 2% above the previous week and 8% above the corresponding week a year ago. Increases were reported for 15 states compared with the previous week. States showing appreciable increases include Arkansas, Alabama and Texas.

Grain Embargo Lifted

NEW ORLEANS — The railroad embargo placed on grain shipments into New Orleans and Mobile ports Oct. 18 has been lifted. This action was taken by W. F. Hennings, regional manager of the Association of American Railroads in Atlanta.

The embargo, which Rogert Jordan, public grain elevator superintendent, says "was never a true embargo," was put into effect by the railroads when 1,785 grain-laden rail cars were lined up at the New Orleans grain elevator.

Mr. Jordan estimated that this week there were about 1,400 cars awaiting unloading, "but this is not considered to be out of line."

FDA Issues Order For Hygromycin B, Chlortetracycline

WASHINGTON — The Food and Drug Administration has issued a food additive order for use of chlortetracycline and hygromycin B in swine feed and simultaneously amended its antibiotics regulations to permit use of the combination, according to the Federal Register.

The order came on petitions filed by American Cyanamid Co.

The order clears the antibiotic combination for use "in the prevention or treatment of bacterial swine enteritis, for maintenance of weight gain in the presence of atrophic rhinitis, for reducing the incidence of cervical abscesses and as an aid in the control of infestation of large roundworms (Ascaris suis), nodular worm (Oesophagostemum dentatum) and whipworm (Trichuris suis) as follows:

(1) For preventive use, the finished medicated feed shall contain 13 parts per million (0.0013%) of hygromycin B and 55 parts per million (0.0055%) of chlortetracycline.

(2) For treatment, the finished medicated feed shall contain 13 parts per million (0.0013) of hygromcin B and 110 parts per million (0.0110%) of chlortetracycline.

The food additive order set a zero tolerance for both antibiotics in the edible tissue of swine.

FDA said that when the chlortetracycline-hygromcin combination is used in medicated feed, the feed must be withdrawn 48 hours prior to slaughtering for food.

CONCENTRATES

(Continued from page 1)

was the text of a presentation by Julius Hauser, assistant to the FDA medical director, at a meeting in November between FDA officials and an industry liaison committee which included representatives of the Grain & Feed Dealers National Assn. and the American Feed Manufacturers Assn. The GFDNA sent out the Hauser statement this week and said that comments on its impact would be made soon.

The new-drug-concentrate question has drawn considerable attention recently. Comments on it were part of a discussion at the recent Midwest Veterinary - Nutrition Conference. (Feedstuffs, Dec. 17)

Interpretation Questioned

Industry spokesmen have said that while legally FDA controls may extend to the final mixing of a finished feed, full controls need not extend to the local mixer using a conventional concentrate made by a feed manufacturer who complies with all FDA labeling and other requirements.

The AFMA has said that "to further subject manufacturers, feed mixers and farmers to stringent and unenforceable regulations that add little, if anything, to the basic consideration of safety, would be most unfortunate."

Now that the Hauser statement has been cleared and released by FDA, industry groups are expected to outline their views on the concentrate question.

Dr. Hauser said in concluding his prepared statement that "we would be glad to listen to ideas for eliminating restrictions without increasing the hazards involved in the use in feeds of a growing multitude of potent drugs." However, he did not elaborate on this.

As of now, the statement spells out what appear to be tight controls on all use of concentrates containing new-drug substances.

It serves to clarify FDA views on various aspects of this area of control, but certain questions also may be raised by persons reading the text. It is suggested that all feed men read the full text of the statement on page 3.

In addition to commenting on new drug and antibiotic regulations, Dr. Hauser shows how the food additive regulations may come into the picture.

FDA does explain that in some cases a concentrate may be the "final dosage form" and may be used directly by a feeder along with other feedstuffs. Some question may be raised, however, on a statement that it "may not be used otherwise for manufacturing, mixing . . . "

The term concentrate is not specifically defined in the presentation, except that it is a "preparation containing one or more new-drug substances in such a concentration that the preparation is intended for mixing with feed before it is fed to the animals." Presumably this would include feed concentrates as well as premixes.

Concentrates for Mixing

Most of the attention in the presentation is devoted to controls on the shipment and use of concentrates intended for "manufacturing" use by the local mixer or feeder.

Dr. Hauser, as noted above, said that shipments of concentrates by manufacturers must be covered by NDA's made effective for a specific feed mill or feeder for a specific finished feed.

Also, he said that the dealer, custom mixer or feeder who uses the new-drug concentrate for further mixing cannot legally receive the concentrate in interstate commerce for mixing unless a new-drug application or supplemental application is effective for the product he mixes.

As the AFMA noted in commenting earlier on this whole question and as others have mentioned, the problem of enforcement of regulations of the scope indicated would be extremely difficult, if not impossible, at least with the manpower now available. Also, it is said that there should not be a real question of safety in the normal use of concentrates in the industry.

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COLLEGE TEST #83	150	$22.58

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Summary of Sheep Nutrition Papers Presented At American Society of Animal Production Meeting

Summarized by Dr. T. W. Perry
Purdue University

EDITOR'S NOTE: The accompanying article contains summaries of selected sheep nutrition papers presented at the annual meeting of the American Society of Animal Production Nov. 24-26 in Chicago. The reports were summarized by Dr. T. W. Perry, professor of animal science, Purdue University, Lafayette, Ind. Swine nutrition summaries appeared in Feedstuffs Dec. 10 and beef cattle nutrition summaries appeared Dec. 17.

Numbers of papers devoted to sheep research were second only to those concerned with beef cattle, and exceeded the number devoted to swine research. Perhaps this does not reflect the dollars and cents income from these three species of animals. Rather it may reflect, in part, an increased effort to learn more about the secrets of the rumen. As Dr. C. F. (Shorty) Huffman of Michigan State has so aptly put it, "The rumen is the darkest place in the world."

Twenty-six papers concerned with sheep nutrition have been selected for reviewing in this article.

Hormones

The role of hormones in sheep feeding and management has not been as clearly elucidated as it has been for beef cattle. Several papers discussed research results from using hormones and hormone-like material for sheep.

THYROXINE AND TESTOSTERONE IMPLANTS FOR FATTENING LAMBS — J. K. Matsushima, A. S. Mukhtar, D. C. Clanton and L. C. Payne, Nebraska: Implants of thyroxine and testosterone, alone and in combination, caused increased rates of gain, increased feed efficiency and improved carcass grades of wether lambs. The treatments consisted of the implantation of 25 mg. testosterone enanthate, 10 mg. sodium-L-thyroxine, or both, in western wether lambs. Two metabolism trials were conducted in conjunction with the feeding trial. The apparent digestibility of protein, fiber and energy was highest in thyroxine implanted lambs, followed by thyroxine-testosterone implanted lambs.

GAIN, CARCASS, AND LIVER RESPONSE OF FEEDER LAMBS TO HORMONE IMPLANTS—J. W. Oxley, R. C. Thompson and C. J. Kercher, Wyoming: Two levels of implanted diethylstilbestrol and of implanted Synovex resulted in increased gains of feeder lambs, whereas implanted testosterone enanthate had no significant effect on growth rate. Either 3 or 6 mg. of implanted DES or Synovex-L (25 mg. progesterone and 2.5 mg. estradiol benzoate) or one fourth of Synovex-H (50 mg. testosterone propionate and 5.0 mg. estradiol benzoate) were effective in stimulating rates of gain in a 67 day feeding trial. Carcass grades were unchanged by 3 mg. DES, slightly reduced by 6 mg. DES, Synovex-L and testosterone enanthate, and appreciably lowered by ¼ dose of Synovex-H. All treatments tended to reduce the percentage yield.

INFLUENCE OF SOME ADRENAL AND GONADAL HORMONES ON WEIGHT GAINS IN WEANED LAMBS — M. T. Clegg and G. M. Spurlock, California: California workers tested a variety of hormones on lambs in which the various treatments were administered twice weekly. Although this procedure would not be practical under typical feeding conditions, it is a technique which assures a more even dosage. If any of the substances tested give promise of practical potential, then the most practical means of administration could be worked out later.

The placing of 100 mg. of testosterone propionate in the rumen, twice weekly, resulted in a significant increase in the gain; removing the ovaries from ewes brought about a significant increase in gain; the use of 5 gm. of perthane was without effect.

INFLUENC EOF DELAYED CASTRATION AND OF DIETHYLSTILBESTROL IMPLANTS ON DAILY GAIN AND CARCASS GRADE OF NATIVE LAMBS—R. H. Simms, F. N. Andrews, T. W. Perry and W. M. Beeson, Purdue: An attempt was made to delay the development of the testes of suckling lambs sufficiently that their presence up to slaughter time would not affect the carcass quality adversely. Furthermore, it was desirable to leave the testes intact in order that sufficient development would occur to give the increased rate of gain typical of intact male lambs. This control of the testes was attempted through the use of diethylstilbestrol implants. The Purdue research reported in this paper indicated some advances had been made toward the above outlined goals, although there was a great deal yet to be accomplished. In the 1959 study, implanted DES (12 or 24 mg.) did not increase the rate of gain of intact males but the carcass grades were higher for the treated males than for the untreated males. In the 1960 study, once again there was little difference in rate of gain due to treatment, but carcass grades were highest for intact males implanted at 40 lb. liveweight, followed by males castrated at 10-14 days, then intact males implanted at 10-14 days and then unimplanted intact males.

PELLETED VS. NON-PELLETED CREEP FEEDING AND STILBESTROL IMPLANTATION OF EARLY-WEANED LAMBS ON WINTER TEMPORARY PASTURE — D. M. Baird, H. C. McCampbell and O. E. Sell, Georgia Experiment Station: No significant increase in the rate of gain of suckling lambs was caused by the implantation of 3 mg. of diethylstilbestrol. It made no difference whether the implantation was made shortly after the birth of the lambs or if it was made at the time the lambs weighed 45 lb. A second objective of this research was to determine the value of type of creep ration. First of all suckling lambs on pasture fed a creep ration gained significantly faster than those not fed a creep ration. In one year's trial, lambs fed a pelleted creep ration gained significantly faster than lambs fed an unpelleted ration, but in another year's trial this was not the case. A mixed creep ration gave better results than straight shelled corn.

EFFECTS OF ESTROGENIC ACTIVITY IN ALFALFA ON GROWING LAMBS—J. E. Oldfield, C. W. Fox and E. M. Bickoff, Oregon: This research reports the variation in growth response of lambs to different sources of dehydrated alfalfa meal. A closer look at the two sources of dehydrated alfalfa meal showed there was a six-fold difference between the coumestrol (estrogenic activity) content of the two (119 vs. 22 mg. coumestrol per kg.). The two meals were incorporated at a level of 65% of the ration into a pellet, and fed ad libitum to two groups of growing lambs of mixed sexes. The wether lambs gained significantly faster and the ewe lambs significantly slower when fed the higher estrogen meal.

This is just another illustration in which the difference in growth response to two "identical" sources of a feed could not be explained without probing deeply into the chemical makeup.

Pelleting

It has been pretty well established that lambs do better on a pelleted ration. However, there are some instances where this may not be necessarily true.

SOME EFFECTS OF PELLETED COMPLETE RATIONS ON GROWTH, DIGESTIBILITY AND VOLATILE FATTY ACID ABSORPTION BY SHEEP—J. E. Haught, G. B. Thompson and W. H. Pfander, Missouri: The pelleting process significantly decreased the crude fiber content of lamb rations and caused lambs to gain significantly faster than those fed the unpelleted rations. Two lots of eight wethers were fed at various levels ranging from submaintenance to ad libitum consumption. This was followed by a five week ration reversal trial. Differences between the two lots of wethers were significant in favor of sheep fed the pelleted ration in the early part of the trial and during the ration reversal trial. No significant differences in volatile fatty acid absorption or gross appearance of the rumens of wethers fed pelleted and unpelleted rations were found.

EFFECTS OF PELLETING RATIONS OF DIFFERENT CONCENTRATE TO ROUGHAGE RATIOS FOR FATTENING LAMBS—W. H. McClure, F. S. McClaugherty, J. P. Fontenot, R. C. Carter and W. M. Mestanza, Virginia Polytechnic Institute: One of the big advantages for pelleting of rations for feeder lambs is that this practice permits the incorporation of a higher percent of lower grade roughage. When rations containing as little as 25% roughage were compared, there was no advantage in pelleting—in fact the pelleting of the predominantly concentrate ration decreased its performance with lambs. However, when the percent of roughage is somewhere near 40% or 50% or 60%, there is a definite nutritional advantage in having the ration pelleted.

NUTRIENT ADDITIONS AND PHYSICAL FACTORS THAT INFLUENCE LAMB PERFORMANCE ON HIGH CONCENTRATE PELLETED RATIONS — Robert W. Rhoades and Walter Woods, Iowa: The Iowa workers report a series of growth trials to study the effect of fortification and pellet size on lambs fed a high concentrate pelleted ration. Pelleting gave an apparent boost in two of the three trials; a one-inch pellet was no improvement over the 5/16 in. pellet; the addition of either vitamins or minerals or both was of no consistent benefit; the addition of trace minerals was beneficial, and in one of two trials, the incorporation of sodium bicarbonate was beneficial. Changes in rumen coloration were found due to pelleting. Differences in digestibility were due to pelleting, but not to fortification.

EFFECT OF FEED ADDITIVES AND FEED PREPARATION ON THE RESPONSES OF FEEDER LAMBS—W. J. Tysnik, J. H. Cline and J. K. Judy, Ohio: The Ohio workers report research in which everything tested on lambs was beneficial. This is almost like the King Midas touch in turning everything to gold. A ration containing 50% alfalfa hay, 40% ground shelled corn and 10% soybean oil meal was fed as pellets and as meal to native feeder lambs. Comparable feeder lambs were handfed a ration of long hay, shelled corn and soybean oil meal. Pelleting and self-feeding increased the rate of gain. Also, the feeding of 10 mg. of antibiotic per pound of ration or the implantation of 3 mg. of diethylstilbestrol per lamb, or a combination of both, increased the rate of gain.

Creep Feeding: Early Weaning

RATIONS FOR CREEP FEEDING LAMBS—J. H. Cline, W. J. Tysnik and J. K. Judy, Ohio: Creep feeding increased the daily gain of suckling lambs by 0.25 lb. per day. However, the composition of the pelleted ration was important. Best results were obtained with dehydrated alfalfa meal pellets in combination with cracked shelled corn and pelleted soybean oil meal. Straight dehydrated alfalfa meal pellets were very good until the lambs were 60 to 70 days of age, and then the performance decreased.

EFFECTS OF IRON-DEXTRAN INJECTIONS ON SUCKLING LAMBS—R. C. Holz, T. W. Perry, and W. M. Beeson, Purdue: The hemoglobin levels of suckling lambs drop by almost half by the time they reach 10 days of age. Then their hemoglobin level gradually increases until it is almost normal by the time the lambs reach 40-50 lb. liveweight. The injection of 150 mg. of iron intramuscularly at one day of age or the injection of 150 mg. each at one and 10 days of age prevented much of the drop in hemoglobin levels. Under the conditions of this experiment there was no significant increase in rate of gain as the result of the intramuscular iron injections. However, there was less death loss in the iron-injected lambs. A desirable hemoglobin level appeared to be 11.25 gm.%.

EARLY WEANING OF LAMBS: A COMPARISON OF THE PERFORMANCE OF LAMBS WEANED AT SIX AND NINE WEEKS OF AGE—F. C. Hinds, M. E. Mansfield and J. M. Lewis, Illinois: Lambs may be weaned successfully as early as six weeks of age. The information presented on average daily gain and feed required per pound of gain indicated that lambs weaned at six weeks of age performed as well as — and in some cases even better than—lambs weaned at nine weeks of age. Death losses were not increased by weaning at six weeks.

PALATABILITY STUDIES OF RATIONS OF SUCKLING LAMBS—C. V. Ross and Melvin R. Karr, Missouri: If suckling lambs are given their preference, they prefer a mixture of feedstuffs in their creep ration over straight shelled corn. The most acceptable mixture of feeds, when pelleted and offered to suckling lambs, consisted of 60% ground shelled corn, 30% soybean oil meal and 10% dehydrated alfalfa meal. This ration was consumed in a quantity 10 times greater than shelled corn. A similar ration modified by replacing 5% of the corn with corn syrup was consumed next most rapidly. Ground and pelleted shelled

corn was consumed in a quantity five times greater than shelled corn.

Additives and Trace Minerals

There are not very many feed additives which have been effective in stimulating the rate of gain of feeder lambs. However, the field of additives for lambs may contain quite a hidden potential and thus research on the subject must be carried on relentlessly.

ENERGY EFFECTS IN STEERS FED CORN-SOYBEAN MEAL RATIONS—R. S. Gordon and E. S. Erwin, Monsanto Chemical Co.: Earlier research led these workers to feel that molybdenum might be one of the key components of the alfalfa "ash factor." However, research reported in this paper indicated that was not the case. Three experiments were reported in which molybdenum was studied further with lambs. In one trial, the addition of 2.2% alfalfa ash to a semipurified corn cob ration stimulated cellulose digestibility whereas sodium molybdate additions supplying molybdenum equivalent to that in alfalfa ash did not. Another trial utilized practical type pelleted rations containing either 60% cottonseed hulls or corn cobs in combination with either 5% corn syrup or corn oil. Alfalfa ash additions stimulated the consumption of all combinations, but an equivalent amount of molybdenum did not.

EFFECT OF HEAT TREATMENT OF THE RATION, SELENIUM AND VITAMIN E ON THE INCIDENCE OF MUSCULAR DYSTROPHY IN THE LAMB—D. E. Hogue and R. G. Warner, Cornell: The cause of muscular dystrophy is apparently more complicated and more involved than was thought to be the case only a few years ago. The so-called "stiff lamb disease" was thought to be the result of a vitamin E deficiency and the syndrome apparently could be prevented or alleviated by oral administration of a mixture of tocopherols (vitamin E). More recently, it has been shown that selenium is as effective as vitamin E in protecting lambs against the condition. The Cornell workers presented evidence that the cooking of the ration fed to the pregnant ewes gave equal protection. The complete and equal protection afforded the lambs by cooked feeds, selenium and vitamin E indicates that dietary factors other than simple selenium or vitamin E deficiencies are important in muscular dystrophy in lambs. The possible presence of a heat labile antagonist in the basal feeds is proposed.

EFFECTS OF DIETARY SODIUM CITRATE UPON FATTENING LAMBS—L. V. Packett, G. A. Butcher and J. R. Fordham, Purdue: Sodium citrate addition to a feeder lamb ration resulted in a 47% increase in rate of gain. The addition of sodium citrate equivalent to 1.63% citric acid resulted in a daily gain of 0.50 lb. as compared to 0.37 and 0.34 lb. for lambs fed the control ration in the meal form and pelleted form, respectively. Feed efficiency was increased 23%, feed consumption by 11%, salt consumption by 11%, water consumption by 40%, and urine excretion by 95%. Average carcass grades and dressing percent were higher in lambs fed the sodium citrate.

VALUE OF ENZYME SUPPLEMENTS FOR RUMINANTS AS MEASURED BY FEEDLOT PERFORMANCE OF FATTENING LAMBS AND IN VITRO STUDIES—Brent Theurer, Walter Woods and Wise Burroughs, Iowa: The story for supplemental crude enzyme preparations in sheep nutrition is about the same one that research has found to be the case for beef cattle. Under the present methods of feeding, little or no advantage is obtained from including the crude enzyme preparations in lamb rations. However, there may be highly specialized specific conditions under which enzyme supplementation may be of value. The Iowa workers report no beneficial effects from including either 1.5, 3 or 6 gm. of Agrozyme per head daily in lamb rations. Similarly, there was no benefit from 5, 10 or 20 mg. of Ficin, a

(Turn to SHEEP, page 57)

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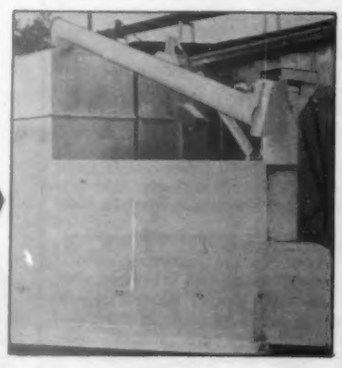

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At Minnesota Convention . . .

Panelists Say Egg Profits Depend Upon Quality, Marketing Efforts

By FRED E. TUNKS and RUSSELL TOKHEIM
Feedstuffs Staff

MINNEAPOLIS — Minnesota poultrymen were advised here this week at a convention gathering to produce quality eggs efficiently and to market them advantageously if they want to secure and maintain a profitable position in the Midwest's egg industry.

Speaking as one of eight panelists discussing the production and marketing of eggs in Minnesota, Ken Denison, regional sales manager for the feed division of General Mills, Inc., said it is imperative that the poultryman produce quality eggs of the type demanded by the consumer and the markets that serve him. "Along with that," he added, "be sure the market pays you according to what you produce."

He suggested also that the producer not jump from one marketing outlet to another. "Stick with one program until it has a chance to do you some good," he advised.

The stage for the discussion was set by the Minnesota Egg Producers Assn. which held its convention at Hotel Radisson in conjunction with the annual meeting of the Minnesota Poultry Hatchery Assn. Total registration for the two related conventions was about 650.

In the marketing phase of the panel program, Harry A. Rust, chief of the Dairy and Poultry News Service, U.S. Department of Agriculture, remarked, "Fast approaching is the time when there are a number of market centers other than New York's to watch."

He was asked, "Why can't we have a local market as well as a Chicago or New York market?" Mr. Rust answered that USDA does report "local" quotations in major poultry states and is in the process of setting up a price reporting center in St. Paul.

Egg Surplus

Dr. W. H. Dankers, University of Minnesota agricultural economist, entered the discussion from the floor and recommended that poultrymen in a state which produces more eggs than are consumed within the state should export its eggs to markets where demand is greatest for any particular time.

An alternative, according to Mr. Rust, is to "reduce the price of surplus eggs and sell them locally rather than export them." He said this marketing technique is used in California.

Gordon Urner, Urner-Barry Co., New York market reporting service, said shipments of eggs into New York often lack the quality needed to command top prices. And he implied that quality improvement would bring about better prices in that market.

"Is it true," Mr. Urner was asked, "that a 25-case sale in New York could set the market for the grade for that date?" His answer: "Only if that particular transaction was consistent with the market in general."

Dr. Elton Johnson, head, poultry science department, University of Minnesota Institute of Agriculture, and moderator of the panel discussions, relayed many written questions on efficient production of quality eggs to several panelists.

Dr. Robert Berg, University of Minnesota poultry specialist, said feed waste may be one of the reasons why some producers aren't able to obtain feed conversion ratios as high as those recorded in random sample tests. He suggested that some flock managers aren't getting as many eggs out of their birds as would be possible under better management practices.

Improper layer house ventilation was mentioned as one of the most prevalent problems.

Mrs. Wesley E. Taylor, Kansas City, first vice president, National Egg Council, said she knew of a poultry producer that had installed heat pipes in the cement floor of his houses. This system, she said, kept droppings, the only litter, dry. Carroll M. Eiler, Warsaw, Md., NEC president, also appeared as a panelist.

Dr. Berg recommended that poultrymen confine their birds to houses to maintain constant yolk color, gather eggs frequently, keep them cool and clean them before marketing.

Asked about the effects of genetics on egg quality, Dr. Berg said the heritability of egg quality is very low. He added that some breeds produce better quality eggs than others, but, in general, proper management is the major requirement for quality production.

Don Turnbull, executive secretary, National Egg Council, said producing a consistent quantity of quality eggs is the basic requirement of a successful egg operation. He and other panelists noted that a flock must be large enough to justify frequent egg pickup.

Are 500 Birds Enough?

Dr. Johnson answered a question which asked whether a 500-layer flock was of adequate size. He said he didn't believe a flock of that size could be "very profitable" because of labor and marketing costs.

Ralph Thomas, manager, hatcheries division, DeKalb (Ill.) Agricultural Assn., Inc., and president, Poultry & Egg National Board, said the farm flock of several thousand birds "should have a place in the Midwest" because of the family labor involved, and also it is reasonable to believe that eggs can be shipped into consuming areas cheaper than feed can be shipped into production areas and because the farm family operation "can produce as good a quality egg as a larger operation."

Mr. Thomas was not a panel member. He joined in the discussion during the question-and-answer session and was the featured speaker during

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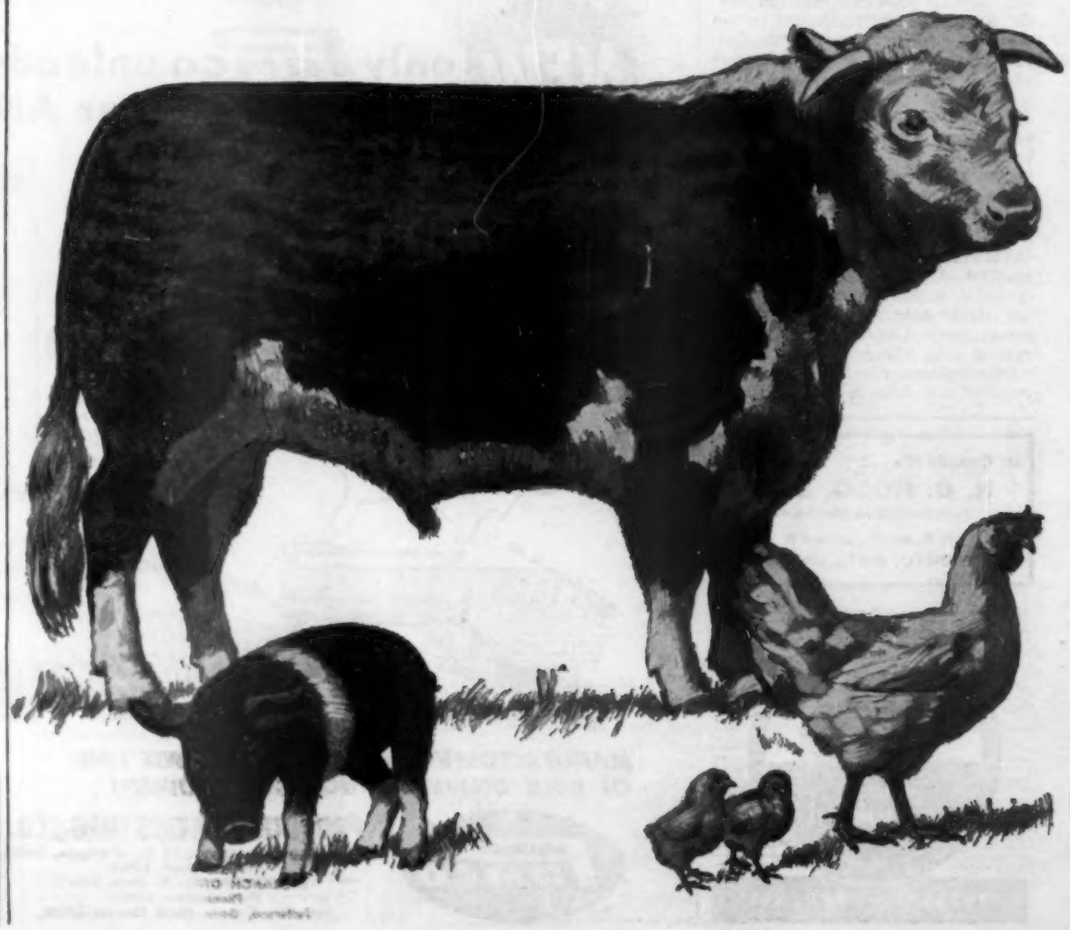

the hatchery association's "Egg-a-Plenty" breakfast.

He emphasized his point that the farm flock "should have" a place in Midwest egg production, and added, "But will it?"

The farm producer, he said, must become an efficient producer of quality eggs. "He must be helped by the industries which serve him in his efforts to get his egg assembling and marketing costs down."

PENB Activities

Mr. Thomas said PENB "is taking a new look at consumer education and egg product promotion" and is particularly interested in "romancing the teen-age market" with educational exhibits and demonstrations at high schools and among various youth groups.

PENB, he said, has in the works a new plan for "sound financing" of its efforts in behalf of the egg industry in the areas of consumer education, product research and product marketing.

In research, PENB will do all it can to prevent duplication of egg research projects. "We'll check on what's already being done in research," he said, "before new projects are started."

Mr. Thomas said PENB will take on an improved financial appearance through the help of a new program involving the contributory cooperation of "the feed man, the producer and the equipment man." He said the days of "pass-the-hat" financing of PENB activities were on the way out because "people with sound equity in eggs will take on their responsibilities" in promoting greater egg consumption.

"No Magic Formula"

During the Minnesota Poultry Hatchery Assn. convention program, Miller Manford, Nixon, Texas, president, American Poultry & Hatchery Federation, said there is no magic formula for prosperity through controls concocted in the halls of Congress. He commented that "nothing from the government is free." Of tax dollars for operating various programs, he said the transportation to and from Washington is very costly. "We rarely get more than 50% back."

He indicated that a program of controls on poultry would nullify the efficiencies achieved by the industry and actually lower the standard of living of the consumer through making him pay higher prices.

Mr. Manford drew a parallel between the auto industry and the broiler industry. He asked what would have happened if the government had stepped in to protect the buggy makers as they were faced with competition of the new automobiles. He indicated he thought few people would want to go back to riding in buggies.

Then coming to a more recent development, he asked how many persons would have cried out if the government had restricted television to the daytime hours of 8 a.m.-5 p.m. to protect the movie theaters and other forms of entertainment.

The federation president said that too many persons in agriculture today seek a false security rather than real opportunity.

He stated that there is a need for better understanding of government by all citizens—not just the young.

New President

New president of the Minnesota Hatchery group is Herald Barton, Silver Lake. The former vice president succeeds Ray Hasley, Rochester. L. L. Baumgartner, Litchfield, was reelected secretary-treasurer. Alvin Offerman, Montevideo, was elected vice president.

Harry Greene, Pelican Rapids, and James Pauley, Hibbing, were reelected to the board of directors. Holdover directors include Mr. Offerman; Mr. Hasley; Mr. Barton; O. H. Ring, Elysian; Bernie Van Rockel, Worthington, and Irving Brown, Minneapolis.

A representative of Columbia Pictures told how state and national organizations representing the egg industry were cooperating in an egg promotion plan coordinated with the showing of a new commercial movie, "The Three Worlds of Gulliver."

He explained at a meeting of the Minnesota Egg Council preceding the hatchery and producer sessions that the movie, based on Jonathan Swift's satirical novel, is a natural vehicle for an egg-promotion tie-in because the plot involves a battle fought over which end of an egg should be broken.

C. F. Zimmer

G. E. Dean

BEMIS APPOINTMENTS—Appointments of Carl F. Zimmer as sales manager of the Kansas City sales division and George E. Dean to the newly-created position of sales executive-milling products, were announced by T. H. Ashton, director of central operations, Bemis Bro. Bag Co., St. Louis. (Feedstuffs, Dec. 17.) "Because of the concentration of milling industry activities in the Kansas City sales territory requiring specialized and complete services," Mr. Ashton said, "Bemis made the changes as an important part of its expanded service plan to its flour and milling customers."

Opens Branch Office

SHREVEPORT, LA.—The Fulton Co., manufacturer of poultry equipment, headquarters in Shreveport, recently opened a factory branch office and warehouse in Forest, Miss.

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R. J. Krueger Named NBC Research Head

RICHMOND, VA.—Dr. Robert J. Krueger has been appointed director of research for the National Broiler Council, according to Frank Frazier, NBC executive vice president.

Dr. R. J. Krueger

In this new position Dr. Krueger will work closely with market research organizations across the nation, both private and public, to encourage research needed to provide answers to the serious and difficult problems now being encountered in marketing broilers.

Dr. Krueger received his Ph.D. in marketing from Cornell University in 1952 and has served as a market research analyst for U.S. Department of Agriculture, professor of agricultural economics at Virginia Polytechnic Institute and, more recently, head of poultry sales, service and marketing operations for a regional feed manufacturer.

"More information from market research is needed to guide processors, retailers, and NBC to achieve maximum effectiveness for dollars spent in elevating consumer demand for broilers," said Mr. Frazier.

"Just as research has enabled the production side of our industry to make phenomenal progress, its broad application to the marketing field will open new frontiers of opportunity. This was recognized by the NBC board of directors last January when they adopted NBC's expanded program which called for a market research department headed by an authority in this field," concluded Mr. Frazier.

Barge Center Planned At Granite City, Ill.

GRANITE CITY, ILL.—A huge Mississippi River bulk port and barge center is to be built near here at a cost of between $20 million and $30 million, according to an announcement by the Tri-City Regional Port District, which was created by the Illinois Legislature last year.

C. A. Ranft, board chairman of the district, said it is planned that the facility will include a large grain elevator, a molasses terminal, an acid storage plant, a warehouse, a tank farm, a railroad marshalling yard, a grain dump and a restaurant and motel for barge crews.

Construction is to be financed by tax-free revenue bonds.

Spencer Kellogg & Sons Selling Oilseed Units

BUFFALO, N.Y.—Spencer Kellogg & Sons, Inc., has sold its Chicago vegetable oil refinery and its cotton gins in California's Imperial Valley and will put up for sale its Long Beach, Cal., flax, cottonseed and copra crushing plant, Fred W. Thomas, president, told stockholders at the annual meeting here.

He said that the Chicago plant was sold to Chicago interests and the cotton gins to the Producers Cotton Oil Co., Fresno, Cal. The Long Beach plant probably will be closed in about three to four months, he added.

Mr. Thomas said the refining operations of the Chicago and Long Beach plants will be transferred to the company's plants in Minneapolis and Bellevue, Ohio, and will result in annual savings of $500,000 to $600,000.

The company, he added, expects to realize between about $2,000,000 and $2,500,000 from the sale of the three facilities, which probably will be used for acquisitions in profitable fields.

All directors, headed by Howard Kellogg, Jr., chairman, and officers were reelected.

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Illinois Study Checks Hog Feeding Practices

URBANA, ILL.—A survey of hog-feeding operations on 299 Illinois farms shows that considerably more than half of the farmers are using complete ground and mixed rations for all or part of the growing and finishing period.

The survey, part of a continuing program of communications research, was conducted in 10 Illinois counties by the agricultural extension editorial office at the University of Illinois. Five of the counties were surveyed by personal interviews with farmers; the other five were included in a mail survey. In total, 81 personal interviews were completed and 218 usable questionnaire forms were returned from the mail survey.

Of the farmers interviewed, nearly 28% said they used complete ground rations fed free-choice during the entire growing and finishing period. Another 30% said they used a complete ground ration for part of the period and shelled corn and supplement fed free choice for part of the time.

A few more than 12% said they fed ear corn and supplement during the growing and finishing period, while 18% fed shelled corn and supplement. The remaining farmers used various other feeding combinations.

Of the farmers who feed a complete ground ration, nearly 50% follow the practice of buying the supplement and having it custom ground and mixed with their own home-grown grain. Over 30% of the farmers buy the supplement but do the grinding and mixing with their own equipment on the farm. An additional 6% said they bought vitamins, minerals and antibiotics to mix with their ration. The remaining 11% followed the practice of buying the complete ration already ground and mixed.

Of the total 299 farmers, 54.9% said they owned grinding equipment, 6.7% owned mixers and 3.3% owned grinder-mixer units. The remaining 35% of the farmers interviewed either did not own equipment or did not answer the question.

On the subject of farrowing houses, 34% of the farmers said they used the central farrowing house system, 23% used individual houses and 39% used both the central farrowing house and individual houses. The remaining farmers purchased feeder pigs.

Only 35 of the 299 farmers said they planned changes in their farrowing systems. Of these 35 there were 20% who said they would start using farrowing crates, 23% who planned to use a central farrowing house and 25% who said they would farrow more often in the future.

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Union Special Names Sales Manager

CHICAGO—Union Special Machine Co., Chicago manufacturer of industrial sewing machines, announces the appointment of Marion O. Moulton as sales manager of domestic sales effective Jan. 1, 1961. He succeeds Travis S. Whitsel, vice president, who is retiring after a 42 year career with the company.

M. O. Moulton

Mr. Whitsel will be retained by the company as a consultant. It is indicated that he may also be engaged in other consulting work within the industry.

Effective also on Jan. 1, Larry M. Brown becomes assistant sales manager; John R. Haderly, manager of technical sales, and Jack R. LeTourneur, assistant district manager at New York, with Guenter Glueck appointed as representative to take over the sales territory vacated by Mr. LeTourneur.

Mr. Moulton, who has been with Union Special since 1933, became manager of the company's Atlanta district office in 1952 and was named assistant sales manager for domestic sales two years ago.

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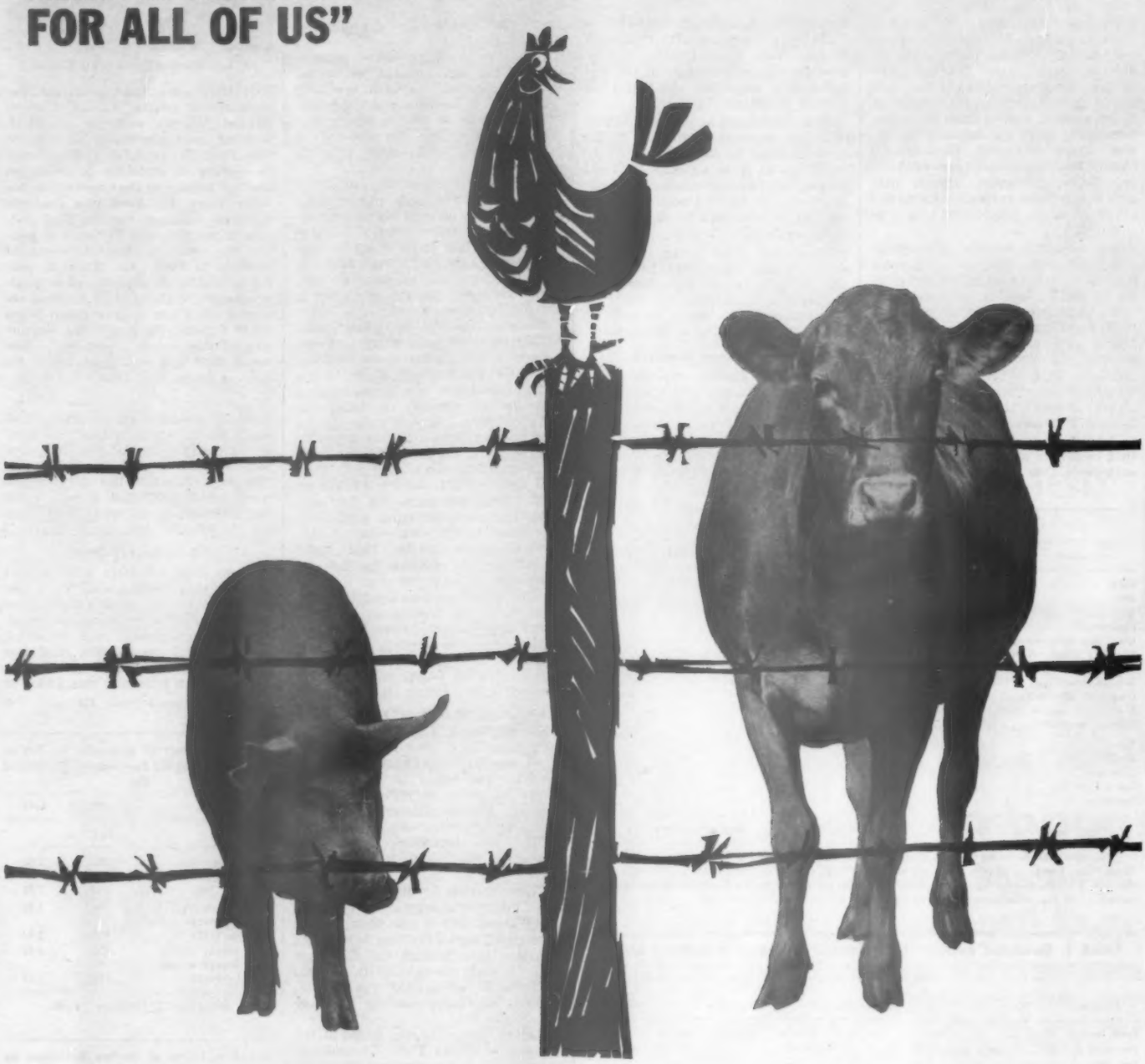

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New Swine Mixing Salt for growing swine contains a high level zinc content to promote maximum growth and aid in the prevention of parakeratosis.

New Multi-Purpose Mixing Salt contains six specially selected trace minerals used in feed for cattle, sheep and mature hogs.

In addition to these three new Mixing Salts, Morton also offers Iodized Mixing Salt and Special Mixing Salt. All Morton Mixing Salts are backed by extensive research and testing. Morton Mixing Salts are available anywhere in the country. For more information about any of them, ask your Morton representative or write:

Morton Salt Research Laboratory, Woodstock, Illinois

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Poultry Nutrition Studies With Bentonite

By DRS. A. A. KURNICK AND B. L. REID
University of Arizona

Bentonite has found wide usage in the manufacture of animal and poultry feeds in addition to its many industrial applications. Several types of bentonite are available for feed use. Sodium bentonite, containing up to 3% sodium, and calcium bentonite, containing up to 3% calcium, are the chief types employed. Bentonite is chiefly montmorillonite and contains principally aluminum silicate with iron, magnesium, calcium, sodium and minor elements present as oxides or silicates.

Bentonite has several characteristics which have made it a desirable ingredient for use in animal and poultry feeds. Its binding ability in pelleted feeds is especially important in bulk handling operations, where a "hard" pellet is essential. Bentonite, being highly adsorptive, has been proposed by some for the prevention and treatment of "loose droppings" in layers; however, there is no published data on this point.

Being adsorptive, it is quite natural that bentonite should be investigated with regard to its effect on vitamin availability. Laughland and Phillips (1954 a,b) in studies with vitamin A depleted rats, showed that the presence of sodium bentonite in the diet (0.5-2.0%) impaired absorption or storage of vitamin A acetate.

In a subsequent study with similar rats, not depleted in vitamin A, the authors failed to obtain a significant reduction in liver vitamin A. Body weight was likewise unaffected; while liver weight was reduced with the feeding of bentonite in the sucrose-casein-brewers yeast diet.

In studies with chicks conducted with practical type diets, Laughland and Phillips (1956) were unable to demonstrate a detrimental effect on growth rate with levels as high as 6% sodium bentonite in the diet.

Substantiated Research

Work with chicks, employing synthetic diets (Briggs and Spivey Fox, 1956), has substantiated earlier work with rats under specific conditions. The addition of up to 20% bentonite to a practical type diet, or 5% bentonite (90 mesh or larger) to a synthetic diet, did not cause vitamin A deficiency signs.

Only the finely powdered product caused the development of avitaminosis A when fed in a synthetic type diet. The use of a stabilized vitamin A source in the synthetic diet also prevented the development of any symptoms of vitamin A deficiency.

In a preliminary study, employing both medium and high energy diets, Gillis (1960) observed no adverse effects on growth or feed conversion with the feeding of up to 4% sodium bentonite to chicks to four weeks of age. In the same experiment, bentonite improved growth when fed in the medium energy diet.

Blakely, Jowsey and MacGregor (1955) reported satisfactory performance of turkey poults to six weeks of age with the feeding of up to 5% sodium bentonite in a practical diet.

A limited amount of data with large animals has shown no adverse effects from the feeding of 3% sodium bentonite during a 114-day study with yearling steers (Erwin, Elam and Dyer, 1957). Jordan (1953) reported improved gains and feed consumption when bentonite was fed to fattening lambs, whereas a subsequent report (Jordan, 1954) failed to substantiate previous findings.

Results of experimental work to date have indicated no detrimental effects from the feeding of bentonite under practical conditions. With synthetic diets, the particle size of the bentonite as well as the stability of the vitamin A source must be considered in evaluating the results.

RELATIONSHIP OF BENTONITE AND ENERGY LEVEL—A number of studies have been carried out at the University of Arizona in order to evaluate the effect of sodium bentonite in diets of different energy content. A total of four separate experiments involving two or three replicates per treatment have been completed to date with White Leghorn cockerels.

These studies involved feeding of three different energy levels (770, 870 and 970 cal./lb.) in the presence and absence of bentonite. The basal diets used in these studies are shown in Table 1, with the calculated analyses in Table 2. Solka Floc was used to reduce the energy content in lower energy diets.

Sodium bentonite was added at the expense of Solka Floc. A combined summary of these experiments (Table 3) indicates a highly significant increase in growth rate with the feeding of 2.5% sodium bentonite at the lowest energy level (770 Cal./lb.). The growth rate of the birds fed 870 Cal./lb. was not improved significantly ($P>0.01$) with the feeding of bentonite.

As expected, the highest growth rate obtained in the study was produced with the feeding of 970 Cal./lb. in the absence of bentonite. The substitution of sodium bentonite into the high energy diet, since cerelose was replaced, produced an energy level of 935 Cal./lb. which cannot be compared directly to the 970 Cal. diet. However, the feeding of bentonite in this diet (935 Cal./lb.) did produce birds which exhibited growth rates not significantly different from birds fed the 970 Cal. diet (Table 3).

Low Energy Diet

These data definitely indicate that the addition of bentonite to a low energy type diet, such as employed in these studies, produced a beneficial effect on growth rate. No detrimental effect on growth rate was obtained under the conditions of these studies, when bentonite was added at

(Turn to page 22)

Dr. A. A. Kurnick

Dr. B. L. Reid

AUTHORS—Dr. Reid, professor, department of poultry science, University of Arizona, received his Ph.D. training in biochemistry and nutrition from Texas A&M College prior to serving as assistant professor of poultry science at that institution for three years. Dr. Reid was products research manager for the feed division of the Pillsbury Co. prior to joining the staff of the University of Arizona in 1960. Dr. Kurnick, professor and head, department of poultry science, University of Arizona, received his Ph.D. degree from Texas A&M College. He joined the University of Arizona as assistant professor in 1957 and was appointed to his present position in 1959.

TABLE 1. Basal Rations Used in Bentonite Studies

Ingredient	970 Cal./lb.		870 Cal./lb.		770 Cal./lb.	
Corn	20.00		20.00		20.00	
Milo	20.78		20.78		20.78	
44% solvent soybean meal	29.95		29.95		29.95	
Fish meal	4.00		4.00		4.00	
Meat and bone scraps	2.00		2.00		2.00	
Distillers dried solubles	2.50		2.50		2.50	
Salt	0.50		0.50		0.50	
Ground limestone	1.30		1.30		1.30	
Dicalcium phosphate	1.45		1.45		1.45	
Manganese sulfate (70%)	0.02		0.02		0.02	
Vitamin premix*	2.50		2.50		2.50	
Bentonite	I	II	III	IV	V	VI
Additions	—	+	—	+	—	+
Cerelose	15.0	12.5	7.5	7.5	...	...
Solka Floc	...	...	7.5	5.0	15.0	12.5
Bentonite	...	2.5	...	2.5	...	2.5
Totals	100.0	100.0	100.0	100.0	100.0	100.0

*Supplied the following per lb. of diet—4,500 I.U. vitamin A, 700 I.C.U. vitamin D_3, 6 mcg. vitamin B_{12}, 2 mg. riboflavin, 12.5 mg. niacin, 5.0 mg. d-calcium pantothenate, 200 mg. choline chloride, 2.5 I.U. d-alpha tocopheryl acetate, 1.0 mg. menadione sodium bisulfite, 2.0 mg. procaine penicillin, 10 mg. chlortetracycline and 56.75 mg. butylated hydroxytoluene.

TABLE 2. Calculated Analysis of Experimental Diets Used in Bentonite Studies

Nutrient	—970 Cal./lb.— I	II +Bentonite	—870 Cal./lb.— III	IV +Bentonite	—770 Cal./lb.— V	VI +Bentonite
Prod. energy (Cal./lb.)	968.00	935.00	868.00	868.00	768.00	768.00
Per cent protein	22.30	....	22.30	....	22.30	....
Per cent fat	2.21	....	2.21	....	2.21	....
Per cent fiber	3.13	3.13	10.64	8.14	18.14	15.64
Per cent calcium	1.30	....	1.30	....	1.30	....
Per cent phosphorus	0.82	....	0.82	....	0.82	....
Vitamin A, I.U./lb.	4831.00	....	4831.00	....	4831.00	....
Vitamin D_3, I.C.U./lb.	700.00	....	700.00	....	700.00	....
Vitamin B_{12}, mcg./lb.	9.57	....	9.57	....	9.57	....
Riboflavin, mg./lb.	2.92	....	2.92	....	2.92	....
Niacin, mg./lb.	23.52	....	23.52	....	23.52	....
Pantothenic acid, mg./lb.	8.49	....	8.49	....	8.49	....
Choline, mg./lb.	769.00	....	769.00	....	769.00	....
Arginine, %	1.28	....	1.28	....	1.28	....
Glycine, %	2.70	....	2.70	....	2.70	....
Methionine, %	0.425	....	0.425	....	0.425	....
Cystine, %	0.354	....	0.354	....	0.354	....
Lysine, %	1.170	....	1.170	....	1.170	....
Tryptophan, %	0.257	....	0.257	....	0.257	....

TABLE 3. Effect of Bentonite and Energy Level on Chick Performance

Diet description Cal./lb.	c/p Ratio	2.5% Bentonite	Average* weight @ 4 wk. (gm.)	Feed conversion	Average consumption Feed/bird (gm.)	Cal./bird	Cal./gm. gain	Prot./bird (gm.)	Prot./gm. gain (gm.)
770	34.5	—	262.5[1]	2.56[1]	671	1134	4.34	149.6	.573
770	34.5	+	276.1[2]	2.49[1]	687	1161	4.21	153.2	.555
870	39.0	—	305.5[3]	2.24[2]	689	1316	4.30	153.6	.502
870	39.0	+	313.5[3]	2.18[2]	685	1308	4.16	152.8	.486
970	43.5	—	324.5[4]	2.09[2]	679	1446	4.45	151.4	.466
970	41.3	+	317.8[3 4]	2.20[2]	703	1427	4.49	156.8	.493

Summary 4 experiments with White Leghorn males. Each experiment involved duplicate groups of 10 to 25 birds each on each treatment.

*Numbers with different superscripts are significantly different at the 0.01 level of probability.

TABLE 4. Effect of Bentonite and Energy Level on Broiler Chick Performance Experiment 69

Diet description	Experiment 69 Av. weight at 5 wk. (gm.)	Experiment 69 Feed conversion	Experiment 73 Av. weight at 5 wk. (gm.)	Experiment 73 Feed conversion
Low energy (770)*	548.2	2.20	514.6	2.37
Low energy + bentonite (770)	559.6	2.17	535.7	2.26
Medium energy (870)	646.5	1.96	594.7	2.00
Medium energy + bentonite (870)	632.4	2.11	615.1	2.02
High energy (970)	652.7	1.91	626.8	1.94
High energy + bentonite (935)	661.2	1.98	638.3	1.95

New Hampshire X Delaware Chicks.

*(Cal./lb.)

TABLE 5. Effect of Bentonite on Broiler Performance in the Presence of 3% Added Fat

Diet description	Av. weight at 5 wk. (gm.)	Feed conversion
Low energy (855)	586	2.03
Low energy + bentonite (855)	602	1.98
Medium energy (915)	592	1.92
Medium energy + bentonite (915)	588	2.04
High energy (1015)	677	1.86
High energy + bentonite (982)	637	1.89

New Hampshire X Delaware Chicks.

TABLE 6. Effect of Sodium Bentonite on the Rate of Feed Passage* in the Chick

Dietary description, Cal./lb.	2.5% Bentonite	Feed passage time (minutes)
Low energy (770)	—	114
Low energy (770)	+	124
Medium energy (870)	—	143
Medium energy (870)	+	139
High energy (970)	—	133
High energy (935)	+	141

*As measured with a ferric oxide marker on six male and six female New Hampshire X Delaware Chicks.

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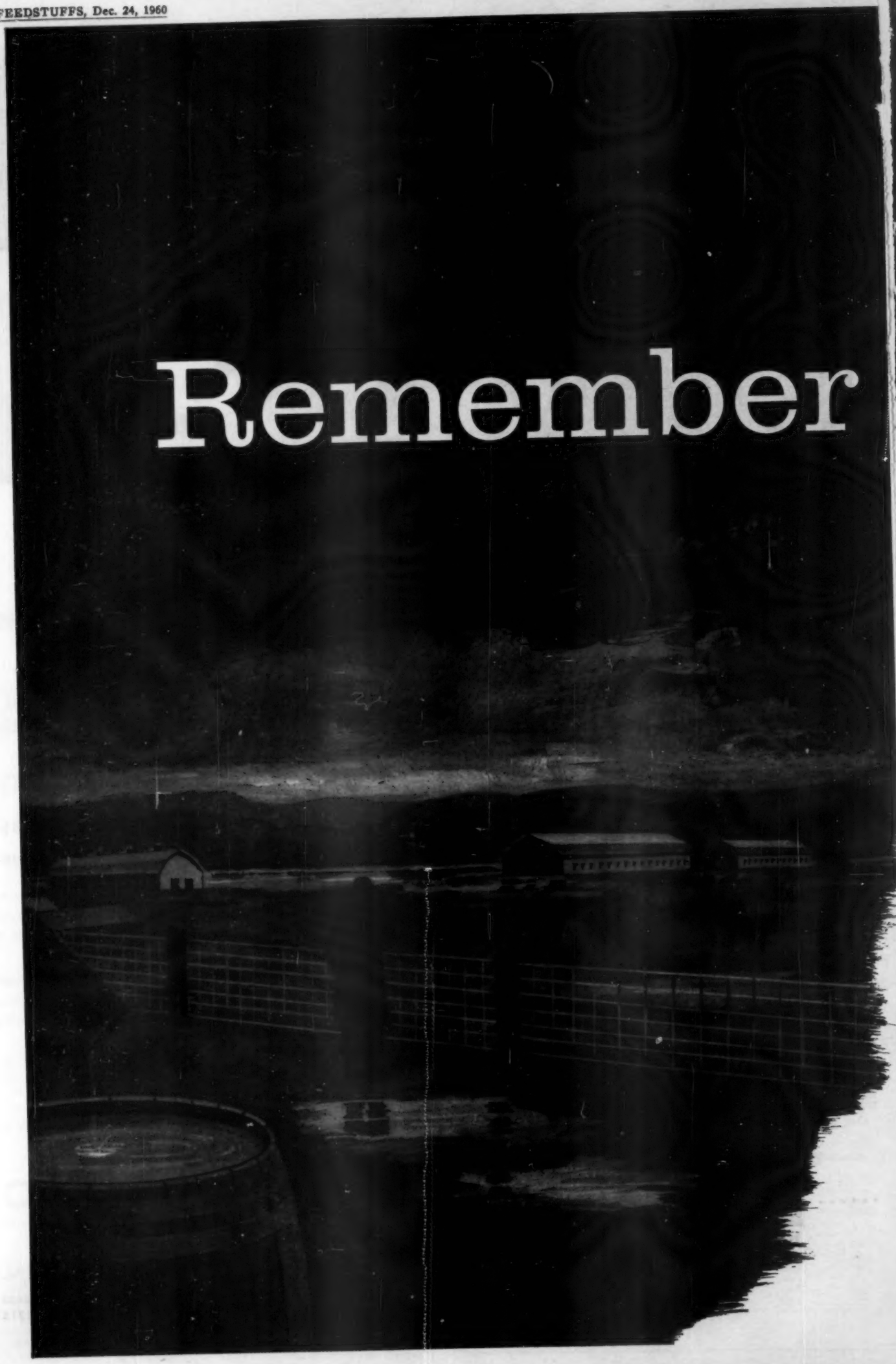
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TABLE 7. Effect of Bentonite at Levels of 0-12.5% on the Growth of Chicks Fed a Low Energy Diet (Exp. 81)

Supplement to basal diet (770 Cal./lb.)	Av. wt. @ 5 wk. Males (gm.)	Females (gm.)	Feed conversion
0	609	558	1.91
2.5% Bentonite	613	561	1.99
5.0% Bentonite	599	535	2.10
7.5% Bentonite	584	547	2.10
10.0% Bentonite	582	558	2.05
12.5% Bentonite	606	524	2.01

New Hampshire X Delaware (14 males + 10 females per treatment).

the expense of energy in the high energy type diet.

Statistical analyses of feed conversion data indicate a highly significant difference between the 770 Cal. diets and other treatments employed in these studies (Table 3). The addition of sodium bentonite did not significantly alter feed conversion at any of the energy levels tested. Although the feeding of bentonite in the low and medium energy diets numerically reduced the amount of feed required per unit of gain, the number of observations involved did not lend statistical significance to these differences.

Calculation of total feed intake on each of these diets indicated a slight increase in feed consumption per bird on the 770 Cal. diet with the feeding of bentonite (671 gm./bird vs. 687 gm./bird). This may serve as a partial explanation for the improved performance on this diet in the presence of bentonite. Improved energy and protein utilization was also observed in addition to increased feed intake when bentonite was fed in the 770 and 870 Cal. diets.

Broiler Type Studies

Two studies, similar to those reported above, have been conducted with broiler type chicks. The results of these studies (Table 4) again indicate an improved growth rate and feed conversion at the lowest energy level when bentonite was fed at the rate of 2.5% of the diet.

The addition of 3% fat to the experimental diets did not appreciably alter the pattern of the results obtained (Table 5). Growth of birds fed the lowest energy level (855 Cal./lb.) was improved with the addition of 2.5% bentonite. These data again point to the possibility of increased feed intake at the lowest energy level as being responsible for the improved performance of these groups.

Another explanation might be the observed increase in feed passage time (Table 6). In each instance, the feeding of bentonite in the diet slightly delayed the passage of feed through the digestive tract. An interesting observation is that the lower energy (high fiber) feeds passed at a faster rate than the high energy type diet. These data on feed passage time are of a preliminary nature on a limited number of chicks and must therefore be substantiated by further work.

The feeding of 0-12.5% bentonite in the diet of broiler chicks to four weeks of age did not detrimentally affect either growth rate or feed conversion (Table 7). The low energy (770 Cal.) diet was used in this study.

SUMMARY—The addition of 2.5% bentonite to diets containing 770 Cal. of productive energy per pound has been found to produce a highly significant improvement in the growth rate of chicks, a slightly delayed feed passage time and an increased feed intake. The feeding of 2.5% sodium bentonite in the presence of 3% added fat did not alter the results obtained.

Levels as high as 12.5% sodium bentonite were fed chicks for a four-week period without any detrimental effects on either growth rate or feed conversion.

♥ ♥

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Australian Firm Seeks Licensing Agreement

WASHINGTON—The N.S.W. Produce Co., Pty., Ltd., of Australia, manufacturer and exporter of scientifically balanced feed preparations for poultry, sheep, cattle and pigs, wants to expand its activities to include the manufacture, under a licensing or financial agreement, of new products for use in the agricultural field, reports the Foreign Commerce Weekly.

It operates a plant located in the farming town of Clowra, 225 mi. from Sydney. The plant reportedly covers an area of approximately 40,000 sq. ft., has its own railroad siding and is on the main road.

The company employs a staff of 30 and operates nine retail stores in country centers and Sydney. Individual country storekeepers also act as agents.

Facilities reportedly include roller grinding machines, hammer mills, separator, pelleting machines, weighbridge and wheat silos, each with a capacity of 50,000 bu.

Interested U.S. firms are invited to correspond with the N.S.W. Produce Co., Pty., Ltd., 181 Clarence St., Sydney.

Amburgo Sales Post To W. Newton Mote

PHILADELPHIA—Samuel Golden, president of the Amburgo Co., has announced the appointment of W. Newton Mote of Greensburg, Ind., as a sales representative for the firm. He will cover Indiana, Illinois and western Ohio.

W. Newton Mote

Prior to joining Amburgo, Mr. Mote was employed in the sales department of the Ralston Purina Co. for eight years. Mr. Mote holds a B.S. degree from the agricultural school of Ohio State University where he majored in animal and poultry husbandry.

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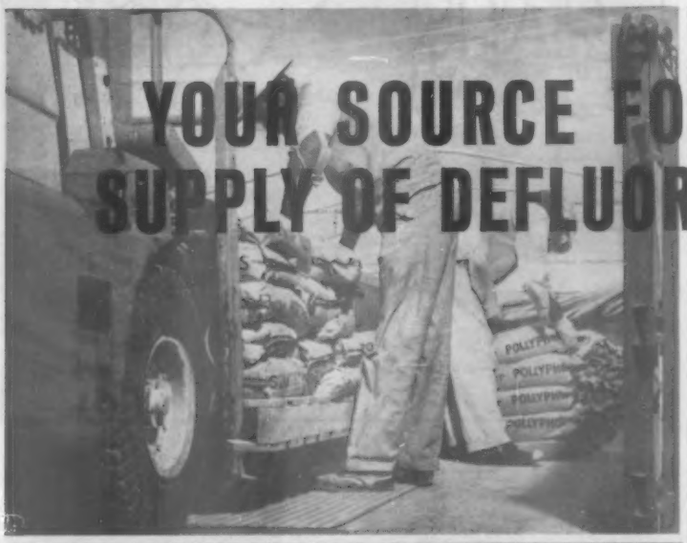

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Staley Profit Off for Year; Uptrend Seen

DECATUR, ILL.—The A. E. Staley Manufacturing Co. reported a net profit of $4,520,834 for the fiscal year ended Sept. 30, down from the $5,712,982 for the previous year. Net sales for the firm were $155,697,017 compared with the previous year's record high of $168,704,309.

Earnings per share of common stock were $2.12 compared with $2.74 the previous year.

The Staley board of directors Nov. 8 voted a regular quarterly dividend of 25¢, an extra year-end dividend of 35¢ and a 2% stock dividend on common shares. Similar payments were made a year ago.

In an annual letter to stockholders and employees, A. E. Staley, Jr., board chairman, and E. K. Scheiter, president, reported sales and earnings moving upward in the closing months of the year.

The August-September upturn reversed a steady downward trend of the first three quarters, they said, and brought fourth-quarter earnings back up to about the same level which prevailed at the beginning of the year.

The outlook, as of the end of the fiscal year, for maintaining earnings in the year ahead was considered favorable, with prospects for continued improvement if the nation's economy remains stable or moves upward. For the long-term future, the chief executives expressed confidence new gains will be forthcoming from the company's expanded research program, with several new products announced during the year and others under development.

Corn division production and sales paralleled volumes of the two previous years, though margins narrowed slightly, with base prices of the company's industrial starches and syrups at levels which have prevailed since 1956.

Soybean division results were the poorest since the company pioneered soybean processing in 1922 with excess capacity intensifying competition in the industry at large, according to the annual report. Margins improved some late in the year, and soybean meal and oil exports aided demand, but not enough to offset the depressing influence of overproduction in the industry.

The U B S Chemical Co., acquired in June, 1959, completed its first full year as a Staley division with sales up 5% over the previous year's record high and good prospects for further growth in its polymer emulsions and adhesives lines, officials said.

Grocery products showed significant sales and profit gains, paced by "Sta-Flo" liquid starch and "Sta-Puf" laundry rinse, the firm reported.

SELLIN' SAM — By Jim Zilverberg

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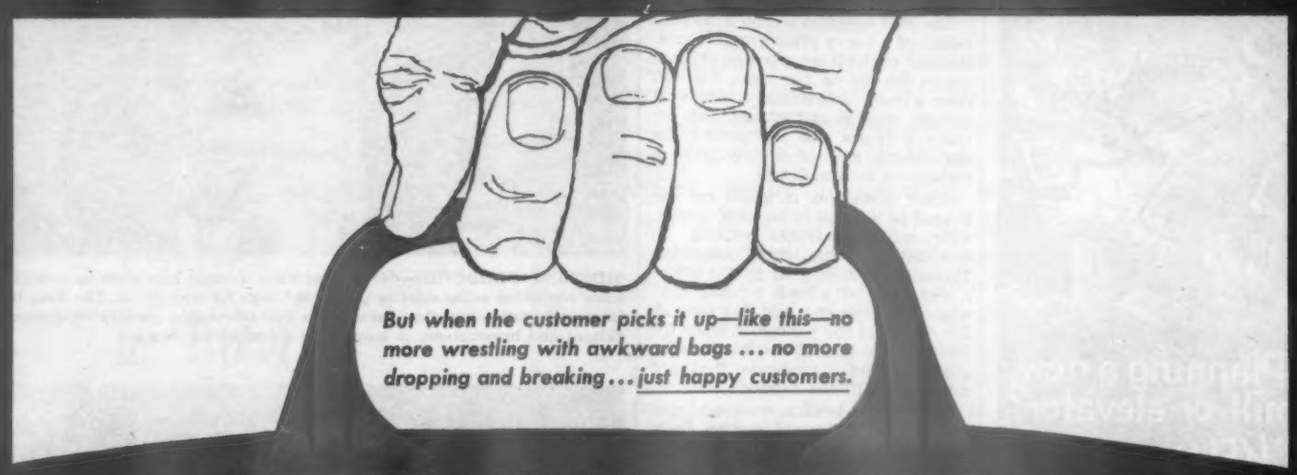
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FEEDSTUFFS

Pennsylvania Company Builds Business on Customer Service

By Phil Lance
Feedstuffs Special Writer

"The best way to win over a new customer is to help him with a problem," says David H. Fahs, partner in R. C. Shuchart, Inc., of New Freedom, Pa. "This has been the approach we have used during our first four years in business, and we feel that more than anything else, this is responsible for our growing customer list. At one time or another, farmers run into a problem, and when we are right on the spot ready to help them, we lay the groundwork for a prospective new customer."

The Shuchart company, a landmark in York County because of its lengthy business operation, was purchased by David H. Fahs and Charles W. Stein about four years ago. Both of these aggressive and enterprising businessmen were former representatives for Beacon Milling in the territory. Under their guidance, sales volume for the firm has steadily been on the increase.

Also involved in the transaction was a store in Hanover, Pa. This is operated almost independently of the main business, with its own mill, store manager and salesman. This provides better coverage and service to customers in the area and permits the personnel in the New Freedom location to concentrate its energies on sales volume in the immediate area, say Messrs. Fahs and Stein.

Feed Breakdown

In a predominantly heavy poultry area, 50% of this mill's feeds are for poultry, 30% goes to dairy farmers, and the balance to hog raisers. The firm distributes Beacon feeds plus a complete line of feeds under the R. C. Shuchart label.

The mill operates within a 20 mile radius of a heavy grain growing area. Because of the large amounts of grain grown for use on the farm, the mill does a very substantial business in custom grinding and mixing. This activity provides the background for the volume sale of protein concentrates and feed additives.

Small quantities of grists are delivered to the mill in farmers' trucks, with company trucks picking up and delivering the larger quantities. Unloading is made easy by the use of a dump pit, with loads running anywhere between two and five tons. A flat charge of 20¢ per cwt. is made for this service, in addition to the supplements and ingredients that are mixed in with the farmer's feed.

"There has been a consistent and growing trend toward custom feeds which is now approximately 25% of our milling operations," explains Mr. Fahs. "This has naturally meant less income in comparison with a finished feed. However, we have more than made up this difference by increased sales volume, greater plant efficiency and by selling more products to our customers."

Bulk handling of ingredients and finished feeds has provided for the increased volume and mill efficiency. A $6 discount per ton on bulk feed has been instrumental in making many farmers convert to bulk feeding. All farmers making this conversion are always urged to maintain a 3-day margin of feed to assure delivery of feed so that they never run short.

The speedy and efficient handling of ingredients, such as unloading an 8-ton truck of corn in a half hour, has been another factor which has meant additional profits for this feed mill.

Building Volume

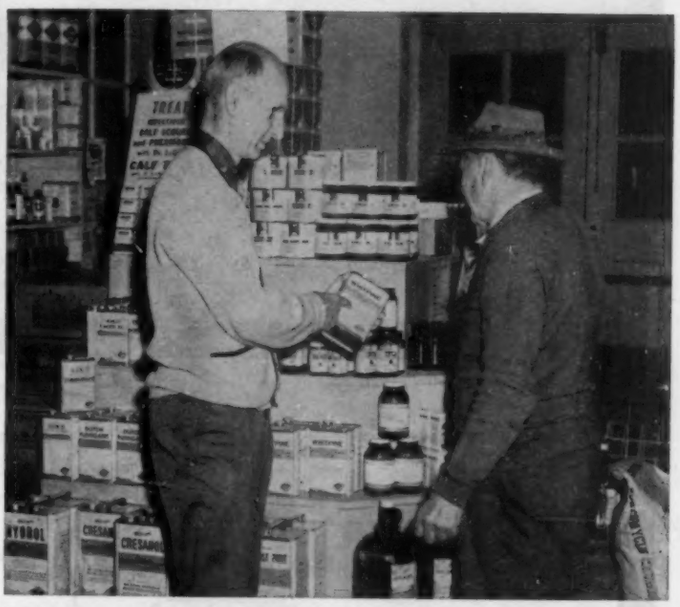
"The addition of many allied and related lines has increased the number of sales that we make to each of our customers," explains Mr. Fahs. "We handle a full line of lawn and garden supplies, canned oils and lubricants for trucks, tractors and other uses, balers and binder twine, poultry equipment, fertilizers, and insecticides. Also we sell various products for the dairy farmers such as milk inflators and milking machines.

"In short, we are continually adding new lines and products that are used by our customers in order to make our mill a one-stop center for all their needs. The more lines we handle, the more we can sell—and this is a major factor in increasing our over-all sales volume."

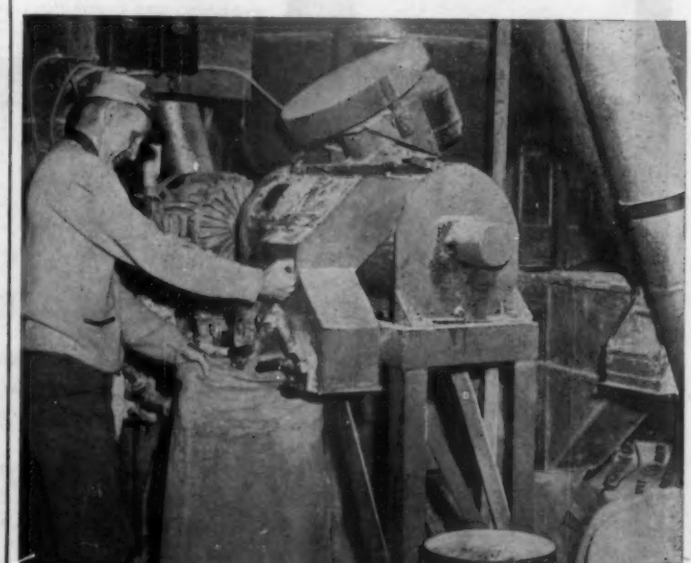
Through personal contact with customers, prospects and by word of mouth, these two aggressive mill operators learn of farmers who are having problems or difficulties of some sort. Without promoting the sale of any particular product or item at any time, they offer their assistance with-

(Continued on page 31)

FEED HANDLING—Incoming ingredients are quickly moved from the truck to storage bins with a Sprout-Waldron pneumatic system. Located in a predominantly heavy poultry area, about half of this mill's feed goes to poultry producers, 30% to dairy farmers and the remainder to hog growers.



SIDELINE PRODUCTS—"Our total sales volume has gone up considerably since we added some sideline products," says Charles Stein. The firm handles lawn and garden supplies, canned oils and lubricants, poultry equipment, fertilizers and insecticides, to name only a few of the items.



MILL EQUIPMENT—"We've had to add some new equipment to the mill to handle the increased business," says Charles Stein. The firm, in addition to serving as a dealer for Beacon Feeds, has its own complete line of Shuchart Feeds.

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New coccidiostat gives broiler feeds extra protection, greater safety, won't depress feed efficiency!

Tests conducted by feed manufacturers, independent laboratories, and experiment stations prove Zoamix provides unsurpassed coccidiosis protection. Experiments conducted under widely varying field conditions show Zoamix is highly effective against strains of coccidia of concern to growers.

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These combined advantages have led many leading feed manufacturers to switch to Zoamix. How about your brand? Write for full technical information and registration assistance to Feed Industry Sales Section, Agricultural Chemicals Department.

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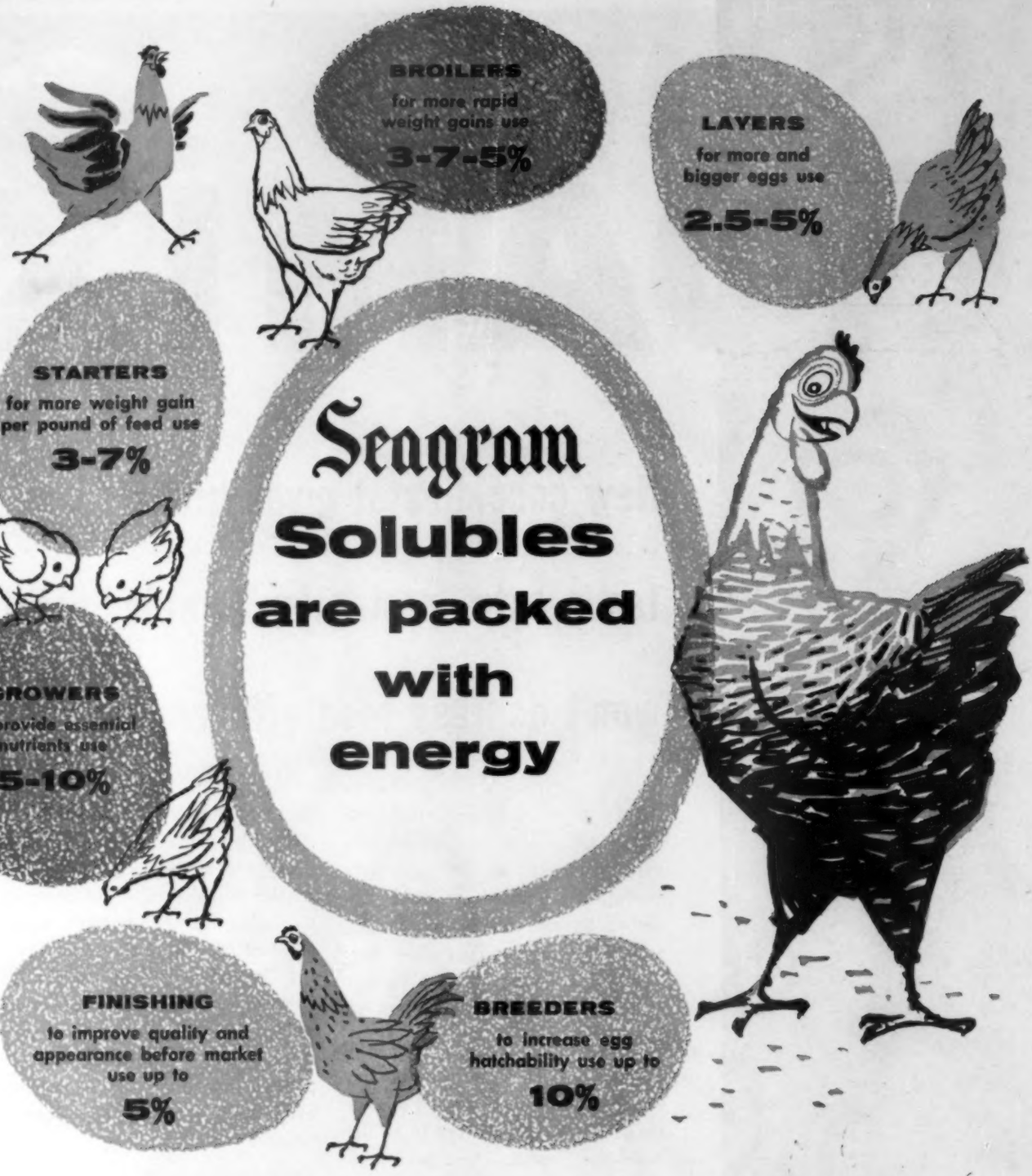

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Poultry feeders often have a variety of aims, and good use of Seagram Solubles can help them achieve each one. Here's a supplement that's low in fiber and rich in vital nutritional elements . . . proteins, fats, minerals, B-complex vitamins and fermentation growth factors . . . the nutrients that promote rapid growth, high egg production, hatchability and livability. To see that your customers get effectively balanced rations, arrange for your supply of dynamic Seagram Solubles now!

Joseph E. Seagram & Sons, Inc.
Grain Products Division
375 Park Avenue New York 22, N.Y.
Member Distillers Feed Research Council

EXTERIOR VIEW—Main building including a showroom promoting the sales of sideline products for R. C. Shuchart, Inc., is shown here. Partners David H. Fahs and Charles W. Stein have owned the New Freedom, Pa., business for four years. The partners credit their steadily growing feed sales to a thorough customer-service program.

out any obligation on the farmer's part.

Quite often, Charlie Stein will spend as much time as a farmer requires in de-beaking or vaccinating his flock, even though the man is not his customer. David Fahs will help a poultry raiser improve his housing layout, make recommendations for better feed conversion and even call in experts from laboratories when this is necessary to diagnose diseases or situations that may be costly to a poultry operation.

Personal Assistance

"One farmer, for example, told us that he was disappointed with his feed conversion," points out Mr. Fahs. "Having 1,500 layers, he felt that his feed conversion was poor and he was losing money on his flock. I analyzed his situation, prepared a different feed formula and the conversion improved by ¾ lb. per dozen eggs. Needless to say, this poultryman has become our steady customer, and we are supplying all of his feed needs."

Mill equipment includes a Sprout-Waldron hammer mill, a 2-ton mixer, a corn sheller, 3 30-ton bulk tanks for ingredients, a Richardson scale and bagger, a Singer sewing machine and a Ripco blower on the 5-ton delivery panel truck for bulk feed service.

Another blower is to be installed on a second truck in the very near future.

"While we gain new customers by solving the problems faced by non-customers, it is also an important part of our job to see that our regular customers are kept satisfied all the time," says Mr. Fahs. "Through close contact with them, making sure to visit them at least once weekly, we can remedy any situation before it expands to a point of dissatisfaction with the customer. As a result, we are keeping our regular customers happy and continually adding new ones."

CUSTOM MIXING — David Fahs weighs a load of corn that is brought in for custom mixing service. The mill is doing more and more custom mixing, and this has stepped up its sales of concentrates and additives, say the owners. Custom mixing of feed involves about 25% of the mill operation.

$10,000 Fire Damage

NEW ORLEANS—Fire of undetermined origin heavily damaged Durham Wholesale Distributors building at St. Louis and North Prier recently.

The fire damaged the building and destroyed most of its contents which included feed and poultry supplies. Preliminary damage estimates were set at $10,000.

An adjoining office of the company was not damaged, nor were several railroad cars behind the building.

Complete Cereals Processed Specially For Pet and Small Animal Foods

★ TOASTED CORN FLAKES ★ KIBBLED CORN
★ TOASTED WHEAT FLAKES ★ KIBBLED WHEAT
★ CORN GRANULES ★ KIBBLED PREMIXES

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PHONE HI 2-1800 — *Cereals of Quality Since 1862* — Danville, Illinois — TELETYPE 7261

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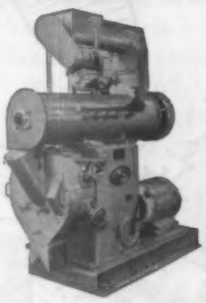

This is just one of California's complete line of pellet mills. Other models with capacities from 1 to 15 tons per hour. Write for complete information, or ask for your CPM representative to call.

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Yours, when its formulated with Sunflower Brand soybean meal! Item: Sunflower Brand starts with the *best* soybeans grown. Item: we "cook" them by a special process to develop highest palatibility and digestibility. Item: Guaranteed OVER 44% protein. Get the complete story from:

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FRUEN MILLING CO.
MINNEAPOLIS MINN

Texas Feed Mill Abandons Contract Hog Feeding Plan

BIG SPRINGS, TEXAS—The Kimball Feed Mill here has called in its hog feeding contracts and will do no more feeding of this type, according to announcement by company officials.

Until less than a year ago the company reportedly did more contract feeding of swine than any firm in western Texas. Dozens of farmers as far as 200 miles away were feeding out 50-200 hogs apiece. The firm furnished the sows to get a new feeder started and then gave him credit for feed until the first litter was ready for market. In addition, there was a scientific service program that helped on nutrition, sanitation and even marketing.

"Most of our troubles stemmed from the type of management we got," said E. F. Hamberlin, area service manager. "Too often the operators got into such financial straits that they couldn't pay out, and we had a difficult time collecting."

Mr. Hamberlin lists several handicaps that a firm faces in carrying out a contract feeding program. Though the mill was concentrating more on hogs than any other type of livestock, the company's experience with laying hens has been somewhat similar. Mr. Hamberlin said the men attracted to credit financing failed for the following reasons:

1. They went into the business as a sideline and did not spend enough time with the project. One man, for instance, lost over 20 hogs from cannibalism because he merely fed and watered the animals once a day and left them to themselves the rest of the time.

2. After erasing some of their financial obligations, they began to increase their swine by buying cheap animals. At least two lost large numbers to cholera.

3. When prices dropped, they sought a cheaper feed, and it was usually one that did not have the protein and antibiotics needed for a sound program.

4. Previous experience with swine proved a handicap, as several operators relied too much upon methods in vogue 20 years ago. These ideas of management were in conflict with what the service men recommended.

5. Many marginal operators will take profit from the project and use it on living expenses, then are unable to make their payments on time.

"We finally wrote the whole thing off as a bad undertaking," said Mr. Hamberlin. "One group of farmers did all right; they paid us off and are now operating on a 30-day basis with us on feed. Many of the others are out of business.

"We find it far more profitable to work with the larger feeders, and to take some of the better growers and help them increase their swine. Our mill is selling as much hog feed as ever before but to fewer customers. One man has had nearly 5,000 on feed, while others have several hundred head."

The firm follows a strict service program with these feeders, and relies upon veterinarians on disease control. All feed is mixed at the local mill and trucked in bulk form to the feeders.

New Towboat in Service

ST. LOUIS — The motor vessel, Austen S. Cargill, giant new Mississippi river craft able to move barge tows longer than the Queen Elizabeth, was christened and put in service here recently, Lewis L. Crosby, president of Cargo Carriers, announced.

Built at a cost of $1½ million, the Cargo's first work trip will be movement of 20 barges of grain—"equivalent to five 100-car freight trains"—from Cairo to Baton Rouge for export.

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BIG 4
EXCLUSIVE PACKAGE

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STILL AVAILABLE FOR GOOD DEALERS IN SOME AREAS

No matter how good your present program is, your customers must make money if you are going to be permanently successful. To do this in the feed business, a feed dealer must have not only a good feed, but also his customers must have good breeding stock, good equipment and good housing. Eventually someone will sell all four in your area — it might as well be you!

No other major feed company in America has this kind of a program to offer a dealer, WRITE, PHONE or WIRE for DETAILS.

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HONEGGERS'
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EXPELLERS
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Write for information and prices
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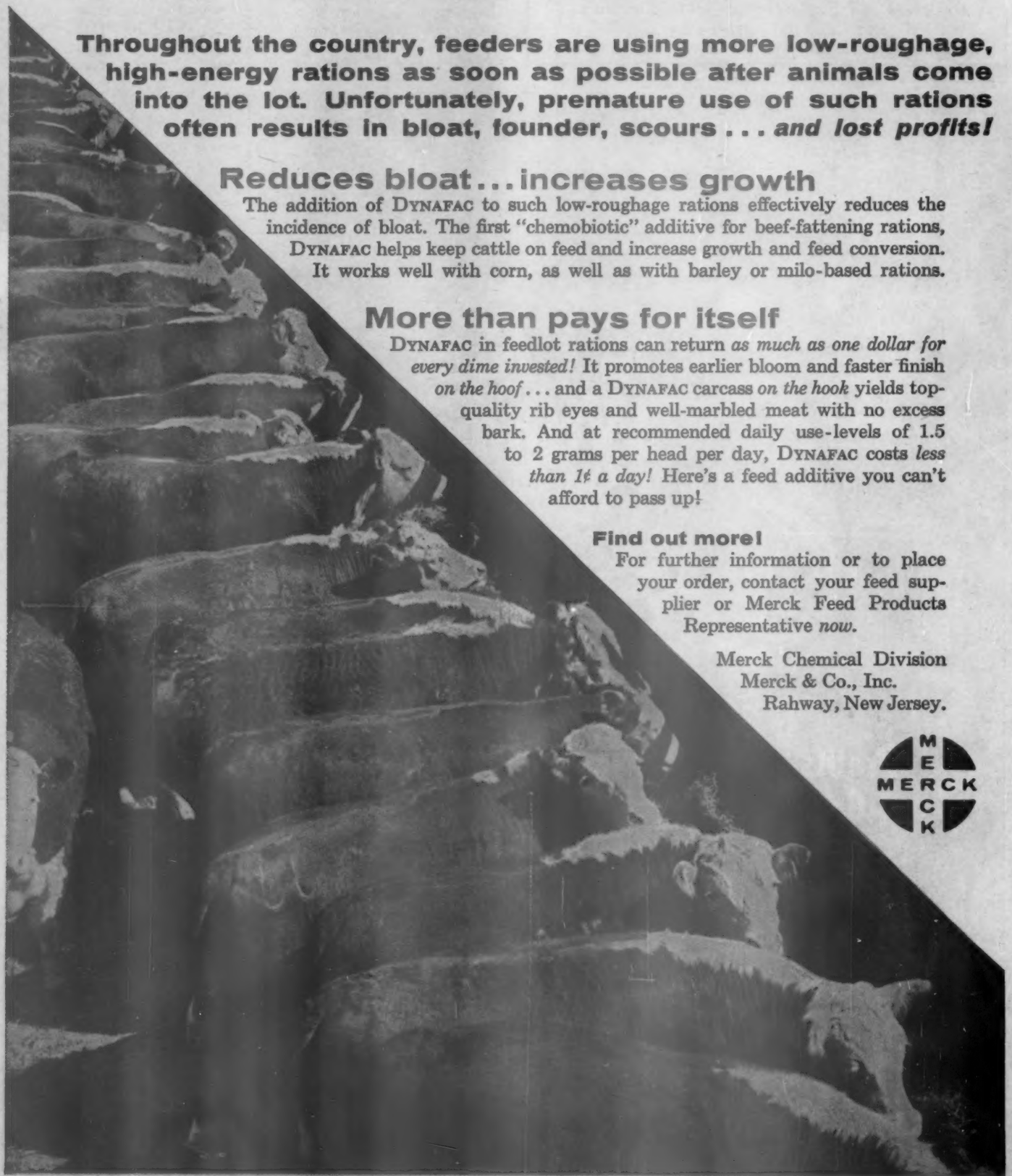
DYNAFAC

lets you use low-roughage rations ...*without* bloat!

Throughout the country, feeders are using more low-roughage, high-energy rations as soon as possible after animals come into the lot. Unfortunately, premature use of such rations often results in bloat, founder, scours . . . *and lost profits!*



Reduces bloat... increases growth

The addition of DYNAFAC to such low-roughage rations effectively reduces the incidence of bloat. The first "chemobiotic" additive for beef-fattening rations, DYNAFAC helps keep cattle on feed and increase growth and feed conversion. It works well with corn, as well as with barley or milo-based rations.

More than pays for itself

DYNAFAC in feedlot rations can return *as much as one dollar for every dime invested!* It promotes earlier bloom and faster finish *on the hoof* . . . and a DYNAFAC carcass *on the hook* yields top-quality rib eyes and well-marbled meat with no excess bark. And at recommended daily use-levels of 1.5 to 2 grams per head per day, DYNAFAC costs *less than 1¢ a day!* Here's a feed additive you can't afford to pass up!

Find out more!

For further information or to place your order, contact your feed supplier or Merck Feed Products Representative *now.*

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Allied Mills Makes 3 Sales Post Changes

CHICAGO — Three changes in district sales management have been announced by E. D. Griffin, vice president in charge of sales, Allied Mills, Inc.

C. S. Kritzer

H. A. Lester, formerly district sales manager of the Corn King District at Ames, is now district sales manager of the Chief District, Indianapolis, Ind., succeeding E. W. Wieting, recently resigned. Charles S. Kritzer, formerly territory salesman in Minnesota, succeeds Mr. Lester. Don E. Burson, regional credit manager, Atlanta, Ga., has been named district products manager at the Gainesville, Ga., district, and will handle sales in addition to his other duties.

H. A. Lester Don E. Burson

Mr. Lester has been with Allied Mills for 23 years. After serving as an assistant salesman in Indiana and Illinois, he was a territory salesman in southwestern Iowa for 17 years before becoming district sales manager three years ago. The Chief District includes parts of Indiana, Kentucky and Illinois, with headquarters in Indianapolis.

Mr. Kritzer is a native of Monmouth, Ill., and a graduate of the University of Illinois. He was employed by Allied Mills in 1949 as an assistant in the company retail store at Sterling, Ill. In 1950, he became an assistant salesman and, in 1954, he was the first territory salesman to represent Allied Mills in Minnesota. His record there brought his promotion to district sales manager, the company said. The Corn King District includes territory in Iowa and northern Missouri.

Mr. Burson was employed by Allied Mills in 1953, as credit manager in Omaha after having worked for Continental Oil Co. and The Quaker Oats Co. He has handled credits for Allied Mills at Omaha, Mason City, Fort Wayne and, since 1957, as regional credit manager at Atlanta. He will headquarter at the Gainesville plant and handle both sales and credits in that area.

Wage Hike Slated For Poultry Workers

SALEM, ORE.—Some 1,800 poultry and feed workers in Washington, Oregon and north Idaho will receive a 7½¢ hourly wage increase effective Jan. 2, 1961.

Charles J. Mentrin, international vice president of the Almalgamated Meatcutters and Butcher Workmen, said that workers will probably receive some additional increase under a cost of living escalator clause.

The increase, which applies both in plants of cooperatives and independent firms, is provided automatically in a contract negotiated earlier.

The new hourly wage scales will range from $2.05 to $2.39 for women and from $2.26 to $2.83 for men. The Northwest Poultry, Egg and Feed Council of Washington and Oregon, composed of the meatcutters' union, represented employees.

CK is OK for Profit...Service...Quality
Don't Mix Without CK Econolass
(85% feeding Cane Molasses Equivalent — Dehydrated on Soybean Mill Feed)
Why? Because CK Econolass is economical AND is of uniformly high quality. In fact, you can't buy a better dry blackstrap molasses feed ingredient.
You'll like the ease with which Econolass mixes (never sticky — won't harden or ball up), and you'll like the convenience of the moisture-resistant 50 lb. bags.
You'll like the FAST service your orders get from CK — and your customers will like the fast, healthy gains your feeds provide with the added palatability of Econolass.
Profits Go Up With Econolass in Your Feed
The CK Line of quality feed ingredients includes —
• Econosol — Fish solubles dried on soymeal.
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CK Processing Company
REDFIELD, IOWA MUSCATINE, IOWA
The Best Friend Your Feed Ever Had

Fleischmann's F·I·D·Y
IRRADIATED DRY YEAST
RICH IN VITAMIN D FOR FOUR-FOOTED ANIMALS

Use Your Own Salt and Calcium with Herman Nagel Formula B
PHOSPHORUS CONCENTRATE with TRACE MINERALS
...to Supply Every Needed Mineral
In a form so soluble "it melts on your tongue."
The HERMAN NAGEL Co.
53 W. Jackson Blvd.
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Everything We've Said About Nichols 108's For Over Four Years:

PROVEN TRUE!

"The cleanest dressing white cross broilers ever produced."

Broiler Industry — Aug. 1957

"Because the 108 is a multiple cross produced from synthetic strains developed exclusively by Nichols, it has exceptional disease resistance. It is brim full of vitality which means more eggs and better eggs with high hatchability."

The Poultryman — Sept. 6, 1957

"Crossbred chicks have proved that they are healthier and grow faster than pure strains. Crosses produced by Nichols 108s are doubly fortified because the 108s are multiple crosses to intensify the extra health factor in the broiler chicks."

American Egg & Poultry — Feb. 1958

"Broilers based on Nichols 108s produce more pounds of meat per house, lead in percent of salable yield, dress cleanly and are ready made for government inspection."

Poultry Processing & Marketing — Aug. 1958

"No other birds top broilers based on Nichols 108s under commercial conditions."

Broiler Industry — Oct. 1958

"Processors can realize ½ to 1% greater yield from broilers with Nichols 108 mothers."

Georgia Poultry Times — May 19, 1958

"In at least 3 out of every 4 split house tests, under commercial conditions, broilers based on Nichols 108s will lead in growth and feed efficiency."

Broiler Business — June 1959

"Any way you figure it, you simply cannot match Nichols 108s for over-all profits at the commercial, industry level."

Feedstuffs — Nov. 14, 1959

"In 1960 Maine, Maryland and California tests, broilers based on Nichols 108 females have taken first place in weight and dollar returns."

American Hatchery News — July 1960

"No other birds which compete at the grow-out level even come close to Nichols 108s in egg production and hatchability."

Broiler Business — Aug. 1960

AND THE 108's ARE BETTER THAN EVER TODAY!

Nichols

Order 108s from Nichols at Parkview 9-3890, Brunswick, Maine; 4941 Greensboro, Georgia; or any Arbor Acres office.

Glastonbury, Conn. • San Luis Obispo, Calif. • Springdale, Ark. • Thorntown, Ind. • Carthage, Miss. Skowhegan, Me. • Tenaha, Tex. • Concord, N. C. • Albertville, Ala. • Blairsville, Ga. • Aprilia, Italy

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Selling Eggs—Price Quotations, Marketing Needs, Promotion

By William S. Groff
American Stores Co.

EDITOR'S NOTE: This article contains information presented by William S. Groff, butter and egg department of American Stores Co., Philadelphia, at the North Carolina Egg Industry Conference. The article includes information on pricing, purchasing and marketing.

In the past, most of the criticism of egg pricing has been voiced during periods of depressed prices or when there were sharp fluctuations in the quotations. Then, when prices level out slowly and they cease to fluctuate widely, everyone tends to forget about egg pricing structure.

The terminology "nearby" and "midwestern" as used in the daily market quotations, we are told, no longer implies any narrow geographic restrictions. While this may be true, I believe that ideally, the market news service agency should refer to eggs solely on the merit of the internal and external quality. This would eliminate any description or phraseology which might influence the buyer.

I believe that the market news service must disregard false supporting of the markets, whether it be for the benefit of the individual, broker, co-op, or anyone else. Gamble and speculation in this vital news service should be resisted and discouraged. Urner Barry Market News Service should be sensitized only by supply and demand factors, and should ignore all price props.

With the advanced methods of protecting egg quality which we know and use today, such as "farm sprayed" eggs, we often find a surplus of these treated eggs in the hands of dealers. Even so, the market news service may quote higher prices and a steady or, rather, firm market.

Recognition must be given to treated egg shells since, in many cases, these are the finest quality. Shell-treated eggs no longer mean simply storage or held eggs.

As fewer and fewer eggs are being traded over the exchange each year, it becomes necessary for Urner Barry to look elsewhere for the information they need to reflect intelligent decisions in setting their market quotations. We are even now experiencing still further changes in the system of purchasing eggs, in that the producer is now negotiating contracts directly with the chain store or retail outlet with the assistance, guidance and support of major feed companies, hatcheries and egg stations.

As more and more of these contracts are negotiated, it will be necessary for Urner Barry to reach out further daily for an intelligent appraisal of the real and true market conditions. Frequent contacts, probably by telephone, must be made to representatives of retail outlets, producer representatives, as well as brokers.

Monthly Adjustments

This suggestion would, of course, be time consuming and more extensive and would mean that the quotations be made less frequently; perhaps semi-weekly to start and then building up to weekly. I further believe that with the very strong influence and predominance of extra-fancy eggs as brought on by integrated programs, eventually we might be able to make adjustments in market quotations once monthly.

We have tried to purchase our eggs on a weekly average price in one of our zones. With this method, we knew in advance exactly what our eggs would cost us for the following week, and we could plan sales in advance without any threat of the market advancing after we would announce our weekend retails.

This method obviously worked to our advantage during rising market quotations at the expense of our egg dealers and adversely affected us during periods of market declines.

However, unless there is general acceptance of this method by most retailers in one area, it cannot be too successful. We expect to eliminate this test area on weekly average paying prices in the near future.

Drastic fluctuations in market quotations must be eliminated if the retailer is expected to set his retails with any degree of intelligence. It seems that each time a producer group or egg dealer group approaches us for cooperation in promoting a certain brand of eggs, we always find ourselves out on a limb. If we agree to reduce our retails to a very narrow margin to assist in relieving this surplus, we only have to read in the market quotations the next day that the market has advanced or firmed on this particular brand.

While we believe in fair prices to producers and realize that they must make a profit, too, I hope the market news service will either attempt to eliminate wild fluctuations in the market or provide us with a crystal ball. It would appear that closer contact and more frequent contact between Urner Barry and the retail outlets could reduce this hazard.

Per Capita Consumption

The years during and immediately following World War II found egg consumption at a very high level. This was brought on by high retails of various other staple foods; food rationing and shortages also contributed to this high level. Then as foods once again became more plentiful and were not rationed or high priced, the sales, or rather the consumption, of eggs started a gradual decline.

More recently, the sales of eggs seemed to have been hit by the development of convenience foods—such as prefabricated meals, etc. The operation of a modern household apparently requires less and less time of the housewife in the kitchen with these frozen dinners or prefabricated meals.

Less eggs are used then in cooking as well as in breakfasts. The mid-morning coffee break together with a doughnut from a slot machine or a cigarette has eliminated the need for many people to fortify themselves with a healthy breakfast which used to carry them through till lunchtime.

During the last half of the 1950's, the American public was informed of the possible effects of cholesterol on the health of the individual. Sales promotion work assigned to cereals, etc., advanced by leaps and bounds. Television played its part in this promotion, for many attractive commercials sent the children scurrying to their local stores for a package of cereal which they had never heard of before—and which their parents would probably wind up eating.

This cereal, however, did offer a free "cut-out" on the back panel of Jesse James or the Lone Ranger, or a coupon which when accompanied by 50¢ entitled them to a toy or novelty worth only 25¢. During all this time, very little promotional work was given to eggs. We thought all we had to do was have people automatically help us out of our surpluses. This was a mistake—people must constantly be sold on a product.

Partly because of sales promotional

The only way you can be sure your feed has the vitamin E level you want is to put it there

You never know how much vitamin E was in the grain when it was harvested. Trying to "protect" vitamin E that may not even be there is like locking the stable door before the horse gets inside.

Feed men who want to minimize risk of feeds low in this important vitamin add *Myvamix® Vitamin E*. Then they know. Myvamix delivers a sure 20,000 International Units of vitamin E per pound. A few dimes' worth will fortify a ton of feed. And with Myvamix you get real vitamin E—the kind that's good to have in feed, good to have in the chicken, good to have in eggs. Even good to have in people!

For information and a quotation on *Myvamix Vitamin E*, write ***Distillation Products Industries,*** Rochester 3, N. Y. Sales offices: New York and Chicago • Charles Albert Smith Limited, Montreal and Toronto.

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work, we find today a modern supermarket assigning 50 linear feet of shelf display for the cereal family and only 8 to 10 feet of display for eggs. These reasons contributed in part to the lessening egg consumption.

Increasing Consumption

Here are some suggestions I have that might help increase egg consumption in the future:

1. Thought should be given to better presentation to the consumer of our product. More couponing work is needed and more imaginative food recipes should be made available to the housewife.

2. Bulletins from medical agencies should be thoroughly screened and proved before their premature announcement alarms the public. Information should be made available to the public as to the true health value of the eggs.

3. Much greater care must be given to the quality of eggs offered to the consumer. The housewife today still gets an occasional musty smelling or tasting egg or one with Pseudomonas bacteria. These are mostly caused by unnecessary unsanitary practices somewhere between the hen and the consumer.

4. Perhaps we must accept the fact that egg consumption, as we now have it, is at its normal level. We might assume that consumption in the 1940's was unusually high and abnormal.

Method of Egg Purchasing by American Stores Co.

Until five years ago, American Stores Co., as was the practice at that time, operated its own candling rooms and distribution centers for eggs. Eggs were bought from both western and nearby egg dealers in wholesale lots, candled by us and delivered by us to our markets along with butter, cheese, produce, fish and many other unrelated items.

Because of the abuse of eggs received from unrefrigerated trucks and impersonal handling—such as shipping them under boxes of fish or potatoes—a gradual change was made to a direct-delivery basis. This provided for store door delivery by nearby egg dealers who provided service to the markets three times weekly or more, if necessary. This transition took three years to complete and is in effect today.

Until about two years ago, we insisted that the eggs we sold be of nearby production. Also, we stipulated that they be produced in the same state in which they were to be sold. However, with the development of large egg-producing areas remote from our zones of operation, we relaxed this stipulation and now even encourage our suppliers to locate for us the best quality eggs at the most attractive price. To this end, we offer our assistance to our egg dealers.

We have approximately 20 egg suppliers providing service to our markets three and four times weekly. We don't want to deliver our own eggs because we feel eggs should be treated carefully and differently than other products. Since converting to this system, we have eliminated our breakage problem, reduced the chance for odors contaminating the eggs from fish, onions, etc., and reduced the average age by at least two days of the egg going into the markets.

Our quality control department, manned by competent egg inspectors, on a full-time basis, with no other assigned duties, make frequent inspections at all our egg dealer stations, as well as at the market level.

Marketing Eggs

What about marketing the eggs? There are several possible steps to be taken that would be beneficial in this area.

Pre-cartoned eggs from remote areas are not working well with us and we prefer to purchase only bulk cases of eggs. We can control the quality much better in this manner.

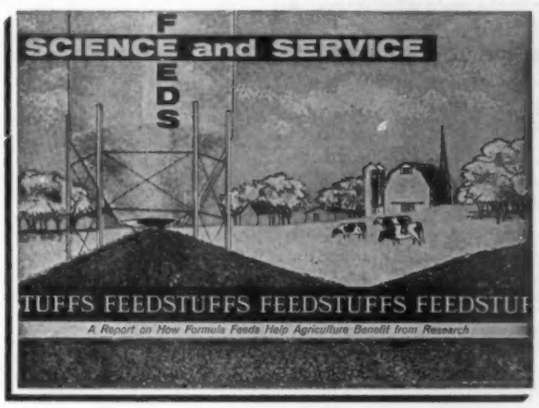
Purchasing eggs on a grade-back or "yield" program is practically a must for us if we want fine quality. This system encourages good quality practices at the producer level because of the incentives of higher prices for higher quality and stabilizes the unit cost per dozen even when the costs of undergrades vary.

In areas or circumstances where the volume of eggs produced is very high and concentrated, a central egg washing station is recommended if daily pick-ups at farms or daily deliveries are made to the egg station.

At the same time the eggs are washed, they should be oil-treated, if possible.

If the volume of eggs in any one area is not large enough to permit or support a daily washing of eggs at one station, then the eggs should be cleaned properly on the farm promptly and sprayed immediately. Responsibility for proper washing of eggs is important and must be realized. Bacteria in eggs caused by improper

Here's an easy way for you to make bigger sales to better customers . . .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Science and Service is a summary of special Golden Year articles in observance of American Feed Manufacturers Association 50th anniversary. Twelve outstanding feed authorities contributed to the reports which appeared in Feedstuffs during the past year and from which this booklet was compiled.

A limited number of reprints of Science and Service *are available now at a single copy price of 50¢. Larger numbers available at quantity prices, ranging downward from 35¢ each for 10 to 100, 25¢ each for 100, to 10¢ each for 1,000. Imprinting a three line company signature on back page of quantities over 100—$7 minimum. Inquire about additional quantity discounts.*

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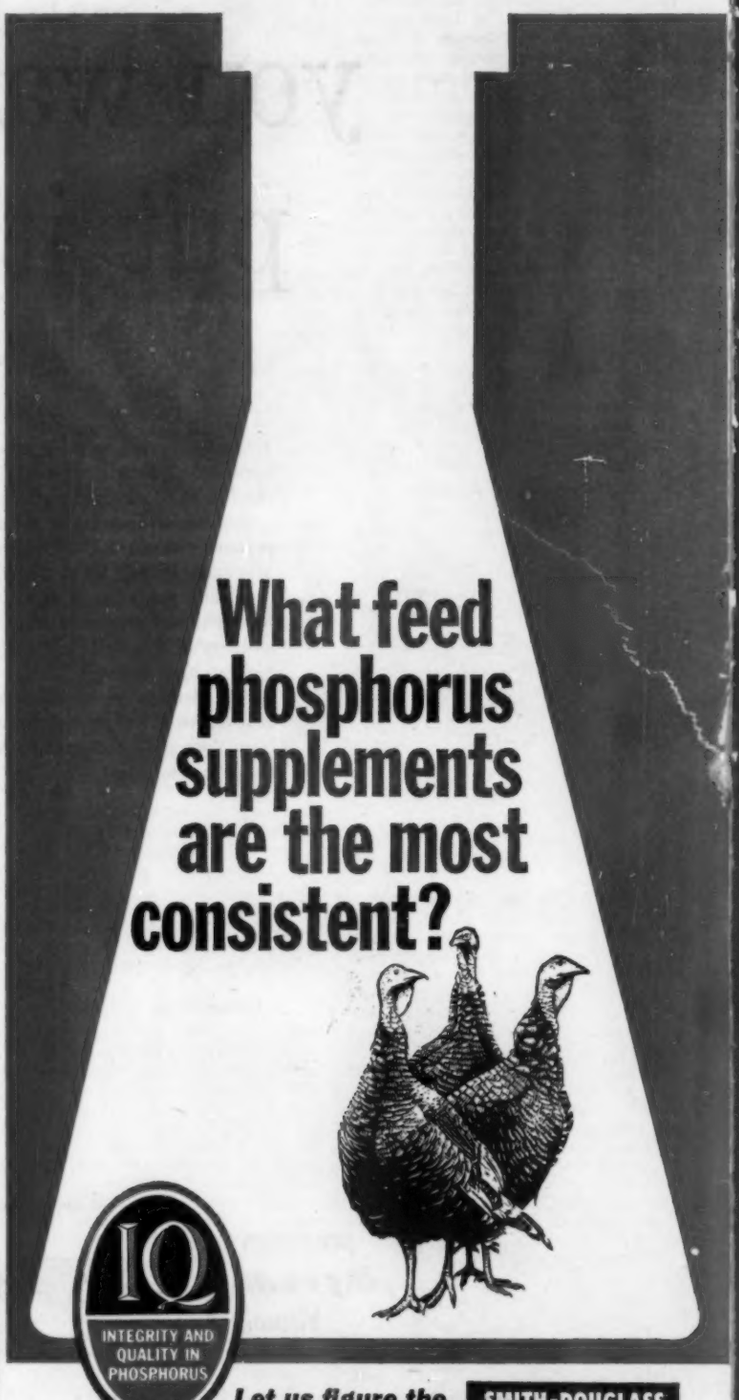
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CDP

washing or other unsanitary practices must be eliminated.

Selections of breeds of birds must take into consideration shell thickness, albumen strength and shelf life as well as high production. Also, mechanical refrigeration must be provided on the farms, in egg stations, and during all transportation.

Feeding should be uniform and customed to provide the shade of yolk desired by the consumers in the area where the eggs are to be sold. Our operating area requires a light to medium-lemon colored yolk. Shading of the yolk can be easily accomplished by your feed suppliers.

Uniformity of quality to the housewife is important. She must not receive flattened yolks or thin whites one week and firm whites and yolks the following week. Delaying of egg shipments in the hopes of higher market prices in a day or two is out of the question and can result only in poor quality.

Flocks should be rotated to provide large sized eggs throughout the entire year. Birds should be in production 12 to 14 months only. Eggs from old birds may appear to have normal quality when produced, but they have a very short shelf life. Systematic flock rotation can provide the various egg sizes throughout the entire year.

As more and more egg stations revert to automatic egg candling equipment, it is more important than ever that the eggs being fed into these machines be of uniformly fine quality; for it must be remembered that these machines, for the most part, merely remove the cracked eggs, blood spots, and so on, and tabulate the losses. Many grade "B" eggs cannot, or are not, removed by the operator. A satisfactory finished product requires that the raw material being fed into the machine be at least 90% "A" quality.

In conclusion, all buyers today should be, and probably are, interested in the integrity of their dealers as well as their product. In North Carolina, you have a golden opportunity to become an even larger factor in supplying fine quality eggs in the northeastern U.S., and I believe that you should profit by the errors of other egg producing areas. Have an outlet for your produce before you over-expand your operation. Retain and guard your prestige and reputation of your products and they will secure your market outlets during periods of overproduction.

IOWA WINS NATIONALLY—A team representing Iowa State University, Ames, won the $1,000 first place award offered by Chas. Pfizer & Co., Inc., in the intercollegiate meat judging contest held recently at the International Live Stock Exposition in Chicago. Left to right are Dr. E. A. Kline, Iowa coach; team members—Gene Pitzen, Stacyville; Marvin Walter, Watkins; John Besh, Geiger, Ala.; and Warren M. Reynolds, manager of the Pfizer agricultural research center, Terre Haute, Ind. The prize money will be used to finance meat research at Iowa State University.

Test after test proves Smith-Douglass CDP and DIKAL to be the MOST CONSISTENT feed phosphorus supplements. Sample after sample . . . month after month . . . from bag and bulk shipments . . . in feed mills throughout the country . . . analyze the same consistent analysis.

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Screen analysis: All through 14 mesh; 80% on 200 mesh, plus or minus 5%.

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'Government Controls In Research Areas May Slow Progress'

WASHINGTON — "Government controls of the chemical, food, and agricultural industries should not be concerned solely with the elimination of all risk but must balance it with the gains vital to the nation," said David H. Dawson, a vice president of the Du Pont Co. "To eliminate risk completely would be to bar progress."

Dr. Dawson, a research chemist who is now a member of the executive committee and of Du Pont's board of directors, spoke in a symposium on "Science and Food—Today and Tomorrow," sponsored by the Food Protection Committee of the National Academy of Sciences-National Research Council.

"Any consideration of risk without simultaneous evaluation of the potential benefit is likely to effectively prevent progress, or at least ensure that it be achieved distressingly slowly," Dr. Dawson said. "The problems involved in increasing food supplies faster than population growth are of such magnitude that we need to accelerate and not hinder solutions."

Citing chemical contributions to the production, processing, and distribution of food, Dr. Dawson said: "They give us security against disastrous crop failures and provide relief in the farmer's cost-price squeeze . . . they give us some assurance that our farms and food industry can meet the food requirements of future generations without hardship.

"The use of chemicals has been a major factor in producing greater variety, more safety, greater availability, increased attractiveness and higher nutritive value in the food consumed by the American people."

The basic reason for these advancements, he continued, "is an economic system and government climate which promised rewards to the inventor and innovator and allowed him a maximum degree of freedom to explore the new, with due, but not excessive regard for the risks involved, both to himself and to the users.

Fewer Risks Taken

"The willingness to risk capital has been subtly but profoundly influenced by the changes in legislation and in legislative climate which have developed in the past several years. This seems to reflect a public—certainly a legislative—desire to reduce the risk of any harmful effect of any chemical additive to foods, and preferably to make that risk approach zero.

"To argue against the reduction of risk to the consumer is patently foolhardy," he said. "Every advance into the unknown has and will involve risk, and generally the greater the magnitude and rate of the advance, the greater the risk."

Further progress in chemical contributions to the food supply will depend to an important extent on the ability of the chemical and food industries to support the necessary research and to take the capital risks involved in manufacturing and marketing the products which research has uncovered. The costs and time required to establish safety of new and established food additives under present legislation must inevitably be reflected in the price of the product, Dr. Dawson explained.

Brown's LedBrest Names Ira Scanlin

SPRINGDALE, ARK. — Ira W. Scanlin, Jr., has been appointed sales and service representative for Brown's LedBrest, Inc. The announcement was made by Ray England, sales manager for the Springdale, Ark., firm.

Ira W. Scanlin, Jr.

Mr. Scanlin, an experienced poultryman, is a graduate of the University of Maine with a B.S. degree in poultry husbandry. He was formerly associated with Nichols, Inc., for nine years. He also served with the U.S. Army.

He and his family reside in Gainesville, Ga.

FDA Grants Extension In Relabeling Order

WASHINGTON — The Food and Drug Administration has announced a time extension in the deadline for relabeling antibiotic drugs for use in milk-producing animals. The new deadline is Feb. 1.

Originally the deadline was set for Dec. 1 on the relabeling which is to include a statement that the drug is not to be used for such animals or a statement that it must be withdrawn a certain number of hours before milk is taken for human consumption.

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No. 7230—Bulk Feed Bodies

The Gaddis Bros. Mfg. Co., Inc., has announced advanced design changes throughout its 18 different models of Pak-Master bulk feed delivery bodies.

The model PM65 combination bag and bulk bodies feature a new field-tested auger unloading system for volume with "minimum distortion of the softest pellets and crumbles." The design also is used on heavier units

for range feeds. Spline shafting is used in the auger unloading system eliminating keyways, keys and bolts. Heavy duty, flush mounted, full-opening doors swing around to side of body for ease in loading sack feeds. Tongue and grooved hardwood flooring is being used to prevent the floor from warping and operator accidents.

Adjustable slip clutch in drive line of this unit protects auger flighting, shafting and overload. For additional information, check No. 7230 on the coupon and mail.

No. 7234—Bench Scales

Heavy duty platform-type bench scales for general purpose industrial weighing are discussed in a new bulletin offered by the Exact Weight Scale Co.

Scales in any of four capacities are available—50 lb. with 1 oz. graduations, 100 lb. with 2 oz. graduations, 200 lb. with 4 oz. graduations and 300 lb. with 8 oz. graduations. The dust-tight, no-glare dial chart has a 15 in. reading line diameter and large black figures for quick accurate reading.

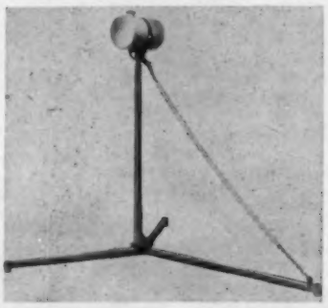
Type 9600 scales are designed with a minimum of moving parts for accurate, maintenance-free operation. Standard equipment includes overload and bumper springs to guard against excessive shock, an adjustable screw located on dial housing and durable baked enamel finish on all external surfaces.

Special rolling stands are available for mounting scales for portable operation. Height from floor to top of weighing platform can be adjusted from 25 in. to 31 in. in 1 in. increments. A quick tare device, allowing 25% of dial capacity to be tared off, is also available. For additional information, check No. 7234 on the coupon and mail.

No. 7231—Cattle Oiler

A new cattle oiler, developed by the manufacturer of Curry-Trol, has been added to the line of cattle oilers produced by Piel Mfg. Co., Inc.

The new Curry-Flex combines the proven performance of Curry-Trol insecticide distributors and a new elastic-action upright standard. Twenty-five cast iron insecticide distributors are stabilized on a one-piece cable. Every movement of cattle



against the insecticide distributors curries the animal, and applies insecticide, the company claims.

Elastic action of the upright standard allows the cable to wrap around the side of the animal's body. It reaches all parts of the body, reports the company.

Each insecticide distributor is designed as a reservoir with dams and gates that "bottle-up" insecticide and release it only when cattle scratch against the double action distributors. Oil flow is metered. For additional information, check No. 7231 on the coupon and mail.

No. 7232—Double Agitator Mixers

The availability of a new bulletin on continuous double agitator mixers is announced by Sprout, Waldron & Co., Inc.

Mixing is done on a continuous basis with provision for regulating the speed of travel through the machine for capacity control, and for intensity and thoroughness of mixing. Various types of agitators are available for gentle handling of materials, or for severe beating, cutting and folding in, impregnating, compounding and other actions.

The bulletin describes design details and gives specifications on 11 different sizes. For a copy of this bulletin, check No. 7232 on the coupon and mail.

No. 7235—Ingredient Analysis Table

A newly revised edition for 1961 of its feed ingredient analysis table—providing nutritive values for 72 common feed ingredients—has been published by Nopco Chemical Co.

All values listed in the table are continually re-examined and revised annually to conform to the most recent analytical data available from nutritional investigators. The values are given as conservative estimates to provide a margin of safety in the calculation of feed formulas.

The 1961 table lists protein, fat, fiber and mineral values, as well as vitamins, amino acids and metabolizable and productive energy values for poultry rations.

The 16½ x 20-in., two-color wall chart provides a reference guide for quickly computing a mill's feed formulas. For additional information, check No. 7235 on the coupon and mail.

No. 7233—Impact Mill

The Sturtevant Pulver-Mill, an impact mill with integral air classifier,

introduced as a 5,000-lb.-an-hour unit in May, 1959, is now available for small-quantity grinding of soft and medium-hard materials, it has been announced by officials of Sturtevant Mill Co.

The smaller, up-to-15-cwt.-an-hour impact mill offers patented double-impactor grinding; deflector wall construction to "bounce" partially-ground material back into the grinding zone while further speeding the pulverization process; and adjustable air classification, thus allowing precise end-product selection, the company reports.

For additional information, check No. 7233 on the coupon and mail.

Also Available

The following new products have been described in previous issues of Feedstuffs and information about them may still be obtained by jotting the appropriate number of the coupon and forwarding it to Feedstuffs.

No. 7197—New package size, Chas. Pfizer & Co., Inc.

No. 7198—Hopper scale bulletin, Richardson Scale Co.

No. 7199—Molasses in silage described, Pacific Molasses Co.

No. 7200—Hog feeding system, Brower Manufacturing Co.

No. 7201—Poultry vaccine catalog, Associated Laboratories, Inc.

No. 7202—Egg cleaning machine, National Ideal Co.

No. 7203—Drive unit, The Lima Electric Motor Co.

No. 7204—Mixer bulletin, Sprout, Waldron & Co., Inc.

No. 7205—Range block press, A. E. Johnson & Sons

No. 7206—Sewing head, Union Special Machine Co.

No. 7207—Poultry medications, Vineland Poultry Laboratories

No. 7208—Bird repellent, Seedburo Equipment Co.

No. 7209—No-Spill Device, The Frank G. Hough Co.

No. 7210—Combination bag, Raymond Bag Corp.

No. 7211—Grain roller mill, Roskamp Huller Manufacturing Co., Inc.

No. 7212—Dog food flavor, Flavor Corporation of America.

No. 7213—Mineral mixes, Corn King Co.

No. 7214—Bulk truck, Productive Acres Mfg. Co.

No. 7215—Turkey disease bulletin, Dr. Salsbury's Laboratories.

No. 7216—Bag closure tape, The West Virginia Pulp & Paper Co.

No. 7217—Enclosed vibrating conveyor, The Cleveland Vibrator Co.

No. 7218—Poultry breeding bulletin, Indiana Farm Bureau Cooperative Assn.

No. 7219—Pox vaccine bulletin, The American Scientific Laboratories, Inc.

No. 7220—Rodenticide, Ferret Laboratories.

No. 7221—Bulk pneumatic trailer, Heil Co.

No. 7222—Dry form of antioxidant, Monsanto Chemical Co.

No. 7223—Safety training course, National Safety Council.

No. 7224—Automatic conveyor scale, Ramsey Engineering Co.

No. 7225—Mobile milling training, Seco, Inc.

No. 7226—Rotary feeder, Fuller Co.

No. 7227—Attrition mills, Sprout, Waldron & Co., Inc.

No. 7228—New equipment leasing plan, Nationwide Leasing Co.

No. 7229—New mixer, The J. H. Day Co.

Send me information on the items marked:

- ☐ No. 7230—Bulk Feed Bodies
- ☐ No. 7231—Cattle Oiler
- ☐ No. 7232—Double Agitator Mixers
- ☐ No. 7233—Impact Mill
- ☐ No. 7234—Bench Scales
- ☐ No. 7235—Ingredient Analysis Table

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Youths, Angus Sweep Bourbon Beef Show

LOUISVILLE, KY.—Boys and girls from Kentucky and South Carolina showing Angus steers swept three out of four of the top awards at the recent 15th annual Bourbon Beef Show in Louisville.

"S. & D. Cookie," a 1,070 lb. Angus owned and shown by Shirley and Doris Brown, Greer, S.C., took the grand champion awards and the $1,000 prize. Pressing close was a 975 lb. Angus owned and shown by 12-year-old Mark Wiseman, Clark County 4-H Club, Winchester, Ky. The Wiseman calf made reserve grand champion for a $500 premium.

Bill Clemens, Peosta, Iowa, led three blacks to the grand champion group of three (in 1959 he had the grand champion single), but right behind him was a trio from the Clark County (Ky.) 4-H Club who took the reserve grand champion group of three. The show offered $18,000 in over 500 prizes.

In carload competition Angus also predominated. Ralph Danner, Muscatine, Iowa, showed a load averaging 1,064 lb. to repeat his $1,000 grand champion carload win of 1959. Right behind with another top load of blacks (average 1,059 lb.) was Dwight Smoker, Wanatah, Ind., who made his fourth in a row reserve grand champion carload and a $500 prize.

Angus also scored in the Kentucky youth division carloads as 15 Clark County 4-H doddies won the $600 grand champion youth carload prize and the Oldham County 4-H Club had reserve champion youth carload with 15 other Angus to garner $150.

A new feature of this year's show was a carcass class which proved very surprising when the steer who placed first on foot turned up at bottom of the class in the final carcass placing. An Angus from Annewood Farms, Goshen, Ky., won the first place carcass award after taking second place in the on foot showing.

All cattle in the show are fattened on balanced rations containing distillers dried grains or solubles which makes them eligible to show and sell as Bourbon Beef. Almost half a million pounds of Bourbon Beef were sold in the sale at an average of $26.35 cwt.

FFA BOYS WIN TRIP

WALTHAM, MASS. — Twenty-five Future Farmers of America members, accompanied by two instructors from high schools in Vermont, were winners recently of an award-trip sponsored by H. P. Hood & Sons and Wirthmore Feeds, Inc. The award is based on student contribution to the local FFA Chapter and scholastic standing. The three-day tour to points around Boston, Mass., included visits to various facilities of the Wirthmore and Hood companies, as well as an inspection of the new loose-housing project at the Warren Chadwick poultry farm in Boxford, Mass.

AT HOUSING TIME
IT'S EASY TO SEE
WHY PETERSON MALES
ARE GAINING FAST!

Peterson MALE

PETERSON
breeding farm
DECATUR, ARKANSAS

WESTERN FED BEEF MOVING EAST

LOS ANGELES—Western fed beef will be making an appearance in eastern restaurants in the near future, says George N. Tucker, manager-secretary of the California Cattle Feeders Assn.

Several large shipments of fed cattle have been sent east during the past few weeks, to take advantage of slightly higher prices, reports Mr. Tucker. Kern County Land Co. at Bakersfield shipped 2,000 choice steers to a Denver packing house two weeks ago. Other shipments have been made from Imperial Valley feeders to Texas packers. Most of this beef will wind up in eastern hotels and restaurants.

Mr. Tucker points out that the CCFA has been carrying on an educational campaign for several years to convince western restaurateurs that California fed beef is equal or superior to eastern corn fed beef.

Tests carried out at the Davis campus of the University of California proved conclusively that there is no difference in quality or "taste appeal" between the western grain fed and eastern corn fed beef.

The campaign to introduce western grain fed beef into California restaurants has been carried out largely through trade magazine advertising and personal contact. According to Mr. Tucker, many California restaurants now feature western fed beef.

National Food's Sales Post to Ed. Smith

OSHKOSH, WIS.—Appointment of Ed. L. Smith, Mankato, Minn., as area sales representative for National Food Co., was announced by Mylan Ross, general manager, Fond du Lac, Wis., manufacturer of animal feeds.

Ed L. Smith

Mr. Smith will work with National No-Milk Calf Food distributors and dealers in Minnesota and neighboring states. He has had broad sales experience in the animal feed business through his former affiliations with the Archer-Daniels-Midland Co. and Mankato Mills.

The National Food Co. which, this year, is celebrating its 75th anniversary, manufactures a wide line of animal specialty feeds. Mr. Smith's appointment, Mr. Ross stated, "is another forward step in National Food's plan for market expansion."

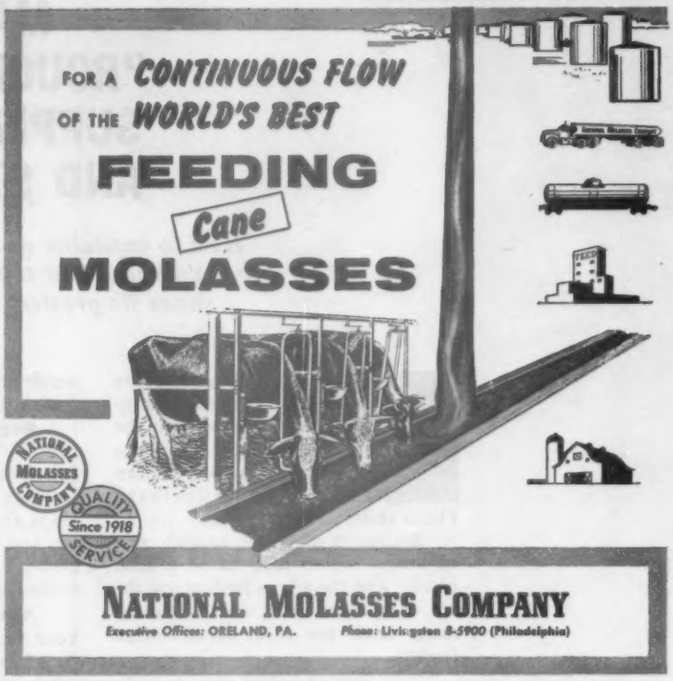
USDA Denies Services To Wholesale Firm

WASHINGTON — Inspection and grading services provided under the Agricultural Marketing Act of 1946 have been denied to two Philadelphia, Pa., wholesalers for a period of three years, dating from Dec. 2, the U.S. Department of Agriculture has announced.

USDA officials said the service was being withdrawn from Henry Blum, owner of Fairview Foods & Poultry Co., and Joseph Zausmer, manager, on charges of "willful misrepresentations and engaging in deceptive acts in connection with making application for inspection service."

Mr. Blum and Mr. Zausmer reportedly admitted the charges and waived hearing.

USDA charged that they applied for export certificates on uninspected poultry products to which they had affixed improperly-obtained labels bearing the poultry inspection symbol. This was reported by USDA to have happened on two occasions—March 18 and March 21, 1960.



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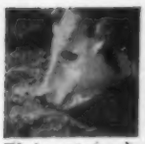
NOR-VELL INC.
FORT SCOTT, KANSAS
The Name That Means Better Selling

MARKET FOR "ROUGHAGE-BUSTING" SUPPLEMENTS IS BIG AND STILL GROWING!

How to capitalize on it? By offering to corn silage feeders a supplement that contains Aureomycin... the additive that shows its greatest response in high roughage rations.



Feed manufacturers have watched with increasing interest the tremendous swing to silage feeding in Corn Belt and Northern Plains states in recent years.

Estimates of feeder animals now on silage run as high as 15 million yearly. And the silage feeders are the *big* ones — they feed out 3 times as many cattle per farm as non-silage feeders.

Market invites you

This is a *made-to-order* market for feed manufacturers. Silage feeders are good supplement customers . . . they've learned that special "roughage-busting" supplements are markedly superior to straight oil meals. Since these feeders often use 2½ to 3½ pounds of supplement per head per day, sales opportunities are enormous.

Reach market with one feed

Usually, only one formulation is required to meet the needs of corn or sorghum silage feeding. Your mixing job is simpler. Your *selling* job is easier. And it's still easier when your supplement contains the wide-spectrum antibiotic, AUREOMYCIN®.

What Aureomycin provides

Your "roughage-busting" supplement for silage feeding gives all these extra values when it contains AUREOMYCIN:

1. All types of beef rations are better with AUREOMYCIN. But, percentage-wise, the greatest response — in extra gains, improved feed efficiency and lowered cost — is in high roughage rations. See chart at right.

2. AUREOMYCIN not only promotes growth and saves feed but also improves health — helps prevent shipping fever, bacterial diarrhea (scours), foot rot, liver abscesses, rhinotracheitis and subclinical diseases.

3. AUREOMYCIN is the one additive beneficial in all stages of production — wintering cows, calves and yearlings; growing and fattening animals.

4. AUREOMYCIN is ideally suited to the long-term feeding done on silage. It keeps cattle healthy and *on feed* through adverse weather and other stresses.

If you wish more facts on the silage market and on AUREOMYCIN in supplements, get in touch with your Cyanamid representative. American Cyanamid Company, Agricultural Division, New York 20, N. Y. ®*AUREOMYCIN is American Cyanamid Company's trademark for chlortetracycline.*

PROOF OF ECONOMY OF FEEDING AUREOMYCIN IN A CORN SILAGE RATION

This recent Iowa Experiment Station trial is typical of many showing the benefits of feeding AUREOMYCIN. These benefits are over and above those of stilbestrol, since both rations contained stilbestrol.

	NO ANTIBIOTIC	AUREOMYCIN
No. of animals	14	14
No. days on exp., av.	98	98
Av. initial wt., lbs.	540	535
Av. final wt., lbs.	713	729
Av. daily gains, lbs.	1.77	1.99
Feed per 100 lbs. gain, lbs.	465	413
Feed cost per 100 lbs. gain	$13.50	$12.30

Average daily ration for both groups was, in pounds: corn silage 24.5, ground ear corn 3, alfalfa hay 3, supplement and minerals 1.1, total 31.6.

CYANAMID
AUREOMYCIN
IN FORMULA FEEDS

CYANAMID SERVES THE MAN WHO MAKES A BUSINESS OF AGRICULTURE

Wisconsin Scientists Study Absorption of Antibiotics by Milk

MADISON, WIS. — Recent experiments conducted at the University of Wisconsin show that antibiotics will normally show up in milk just a few hours after a cow has been treated. Researchers say this is true whether the drug is injected into the muscles, through the veins or squirted into the udder.

Here's what Drs. H. G. Blobel and C. W. Burch, department of veterinary medicine, found in the experiments:

Procaine penicillin G crystalline, one of the most commonly used penicillin preparations, showed up in milk in a shorter time when it was carried in a water suspension than when it was carried in oil. None was detected in the milk 60 hours after an intramuscular injection of 3,000 to 6,000 units for each pound of body weight. But the same dose of penicillin suspended in sesame oil persisted up to 132 hours.

Veterinarians usually give about 3,000 units of this drug. Low producing cows retained the penicillin longer than the high producers.

When each quarter of the udder was infused with 100,000 to 300,000 units of penicillin G crystalline in a water and oil emulsion, the residues were detected up to 132 hours later. Penicillin often travelled from treated to untreated quarters, largely through the blood stream.

Oxytetracycline residues showed up in the milk for only 24 hours when 2 to 4 mg. per pound of body weight were given intravenously. The drug persisted as much as 72 hours when larger doses were infused into the udder.

Dihydrostreptomycin was gone from the milk within 48 hours, even when up to 1 gm. per 50 lb. of cow's body weight was given intramuscularly.

Crystalline chlortetracycline, given intravenously at the rate of 4 mg. per pound of body weight, persisted up to 48 hours after treatment.

All of these drugs are presently used by veterinarians and farmers. Some of the above findings, say the researchers, plus investigations in other states, will be used to prepare more specific recommendations on antibiotic use. The Food and Drug Administration to date has called for discarding milk for at least 72 hours after using most antibiotic preparations.

Cow Feeding Time Cut 80%: Vermont

MEMPHIS, TENN. — Agricultural engineers attending the winter meeting of the American Society of Agricultural Engineers here, were told how to feed a herd of dairy cows in 80% less time than by conventional hand feeding methods.

The report was given by E. C. Schneider, professor of agricultural engineering and Dr. E. L. Arnold, associate professor of agricultural engineering, University of Vermont.

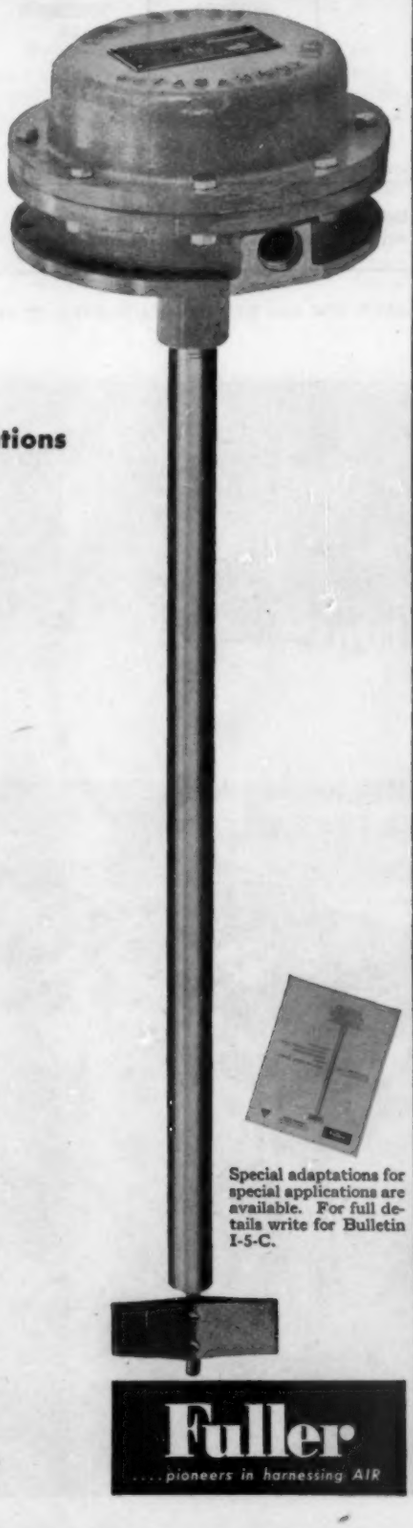
Under the system developed at the University of Vermont, a conveyor delivers hay and silage to the manger. Silage is first delivered to a weighing hopper which weighs out the correct amount per animal. Hay is pitched down at a uniform rate and a mechanism signals the system operator when sufficient hay is on the conveyor.

An electric fence cow trainer is lowered automatically in front of the cows when the conveyor is running to prevent the animals from eating portions of forage not intended for them. Finally, the conveyor sweeps uneaten forage from the manger into a collection pit for disposal.

Research work also is developing automated machinery to feed predetermined amounts of baled hay and ground dairy concentrates. This equipment allows exact amounts of hay and grain to be fed without hand labor.

FULLER material-level indicators for bins and silos

For General Purpose and Hazardous Dust Locations



The Fuller Material-Level Indicator is a reliable high-level/low-level indicator that provides automatic control when a desired maximum or minimum level of material is reached.

The Material-Level Indicator automatically shows the level of pulverized, fine, crushed and granular materials—in a bin or silo—and readily "takes command" of such equipment as feeders, valves, elevators, and conveyors by starting or stopping equipment drive motors when a predetermined material level is reached.

Engineered and built for sustained operation over long periods of time, the sturdy Material-Level Indicator always registers true indication, regardless of momentary surges of bin material or the settling action of aerated, pulverized material.

Fuller Material-Level Indicator's Operation

A sensing paddle, located at the desired material level, is constantly rotated by a shaded pole induction motor located in the casing outside the bin or container. The motor and its reduction gears are mounted on an extension of the paddle shaft. Whenever material restrains the paddle from turning, the motor and its mounting revolve about the drive shaft, actuating two switches mounted on the base of the indicator.

When material falls away from the paddle, an adjustable tension spring returns the motor and its frame to the initial position, releasing the switches and causing the motor to turn the paddle again.

For high-level indication or control, the motor runs continuously until paddle rotation is impeded by the rising level of material.

For low-level indication or control, the paddle is restrained by the material and in turn restrains switches until the material falls below the paddle. When this happens, an adjustable tension spring returns the motor assembly to the starting position, releasing the switches and again starting paddle rotation.

Model SG-4 is designed for general purpose applications; SG-4 is UL approved for hazardous dust locations, Class I, Group D and Class II, Groups E, F, G.

Special adaptations for special applications are available. For full details write for Bulletin I-5-C.

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unless you are entirely satisfied with the bird you are now housing—**and with the price you have to pay for it,** tell your hatcheryman you want to try a flock of Mount Hope Queens **right away.**

Arbor Acres

Your name goes on the outside

Sell A Complete Line of One-Brand Dairy Feeds. Your name on this label can help build sales volume with a One-Brand Dairy-Feed Program.

Sustained dairy-feed sales should start with a Calf Milk Replacer bearing **your** name on the label. With heifers off to a fast, healthy start you can promote the sale of other products in your One-Brand Dairy-Feed Program to keep them healthy and profitably productive throughout the lactation period.

Why not take advantage of over a century of Borden's experience in the dairy industry. Let us provide you with a top-quality Calf Milk Replacer to start or add to your One-Brand line. High-Fat CMR, a standardized substitute for cow's milk, is packed in attractive 25- or 50-pound bags or 25-pound pails. Easy to mix, each pound of CMR contains 10,000 U.S.P. units of vitamin A, 2,000 units U.S.P. of vitamin D_2 and 25 mg. of chlortetracycline. The CMR formula is also fortified with 10% choice white grease to help produce faster gains and healthier calves. The addition of **laboratory-made** trace mineral mixes assures maximum nutrition and optimum suspension characteristics.

Contact us today. Find out how the new, High-Fat Calf Milk Replacer – and our flexible packaging program – can help you develop a complete, One-Brand Dairy-Feed Program for increased sales and profits.

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Committee Suggests Study of Forage Crops, Soybean Processing

WASHINGTON—The U.S. Department of Agriculture's forage, feed and seed research and marketing committee has urged continued studies to develop improved feeds and growth promoting feed supplements from forage crops. Development of methods for processing whole soybeans for use in feeds also was recommended.

The committee, in a recent meeting, also reported that varieties of alfalfa resistant to the destructive alfalfa weevil are badly needed, and urged intensified research to develop these new varieties.

The alfalfa weevil has long been a serious pest in western growing areas, and has also become a major pest in eastern areas during the past nine years.

Committee members pointed to the need for continued stress on basic research. They expressed the view that these fundamental studies should be a primary concern of USDA research units.

Accelerated basic research on the chemical composition and physical properties of forages was also advised by the group. It was suggested that special emphasis be put on studies of components that (1) cause increased growth rates in livestock and poultry; (2) stimulate milk production; (3) prevent diseases; (4) inhibit growth; (5) cause excessive salivation, and (6) inhibit responses induced by other forage components.

Established under the Research and Marketing Act of 1946, the committee is made up of national authorities on forage, feed and seed.

South Dakota Reports On Heat Pump Tests

MEMPHIS, TENN.—A mechanical heat pump system kept temperature and relative humidity in a caged layer poultry house at very near design levels in a study at South Dakota State College.

Donald D. Hamann, agricultural engineering instructor at the college, reported results of the test at the winter meeting of the American Society of Agricultural Engineers in Memphis.

During extremely warm outside weather, inside house temperatures rose somewhat above design conditions of 70°F., Mr. Hamann reported. This was not considered serious since the higher temperature was of short duration.

Relative humidity was uniform over all seasons averaging between 60 and 70%. Researchers found that ventilation rates up to 2 cu. ft. per minute per hen were required to prevent ammonia odor from exceeding comfortable levels for humans working in the house.

Cleaning the recirculated air from the poultry house before passing it through the cooling or heating coils proved to be the main obstacle to trouble-free operation. Conventional, permanent type filters became clogged with dust in a short time.

The heat pump unit performed satisfactorily, having an average coefficient of performance of 1.7 for cooling and 2.8 for heating. Power consumption for the system was very dependent on outside temperatures with minimum consumption occurring when outside temperatures averaged about 30°F.

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Minnesota Linseed Meal earns more for livestock raisers when they market

OUR 90th YEAR

Palatable, slightly laxative Minnesota Linseed Meal conditions—puts a bloom on stock—and helps livestock raisers get top prices when they sell.

The high protein value of Minnesota Linseed Meal is an important feed supplement. It means healthier stock and extra pounds—more income at the market. Sell it straight—by the bag—or mix it with your own brand of ration. *Available in meal, pellet or grit form.*

Suggest Minnesota brand to your feed customers and you'll do them more than a favor. You can *help boost their income.* And, their gain is your gain!

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IRRADIATED DRY YEAST
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That purged worm you find has already gotten even with you. She's been slowly inching her way through your hog's gut for the past two months... growing to egg-laying maturity on your feed all the while. You got her, all right... but not before she got part of your profit. Worse yet: the millions of invisible worm eggs she laid are all around you... just waiting to trim off part of the profit from your next bunch of pigs!

Other products just interrupt the problem. **Only Hygromix controls it.** Hygromix is the only worm control method that stops worms from laying new eggs, kills three kinds of worms... day after day after day.

"Hygromycin... acts partly by blocking reproduction of the parasites... an ideal way to stop the worms before they do the damage."

PRESS RELEASE—UNIVERSITY OF WISCONSIN, DECEMBER 16, 1957

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Out of every flock and You've paid for the extra Protection you get with

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Isn't it worth it?

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CARROLL FEED SERVICE—Photo shows custom feed mill and farm supply store at the Carroll Feed Service on outskirts of Mt. Carroll, Ill. Established in 1954, this business was combined with another mill at Shannon, Ill., in 1956. Partners are Don Casselberry and Wilbur Nicol.

Additional Mill Helps Partners Extend Sales Territory Profitably

By Al P. Nelson
Feedstuffs Special Writer

How can partners extend their trade territory to achieve annual feed volume large enough to use fully the executive ability of two men?

The answer in the case of Don Casselberry and Wilbur Nicol, Carroll Feed Service, Inc., Mt. Carroll, Ill., proved to be the establishment of a second custom mill at Shannon, 17 miles from Mt. Carroll, Ill.

By making this move, the partners say, they are getting more business out of a larger territory than if they had merely extended their outside selling operations from the Mt. Carroll mill. By having a custom mill at Shannon, they are better able to serve feeders in that area, and thus get more business than they would under an expanded outside selling arrangement.

"By having two mills relatively close to each other," says Mr. Casselberry, manager of the Mt. Carroll mill, "we are able to buy in bigger lots, and shift personnel and trucks when we need to. The two mills make it easier for us to meet competition. And we can apply the lessons we learn in one mill to the other and vice versa."

Mr. Nicol opened the custom mill in Mt. Carroll in 1954 and became a Kent dealer. A year later, he brought Mr. Casselberry into the business as a partner. In 1956 the Shannon custom mill was opened. Both mills are doing very well at present.

Feed Needs Differ

"It is surprising how different feeding needs can be in territories so close as Mt. Carroll and Shannon," says Mr. Casselberry. "In Shannon, most of our feed sales go to hog and poultry feeders. Shannon beats us on grinding and mixing volume during the summer. At Mt. Carroll, we beat Shannon on grind and mix volume in winter because, in addition to a thriving hog volume, we also have a large dairy feed volume. Thus, the two mills are able to get the business of most farmers in this combined area."

Mr. Casselberry reports that at Mt. Carroll about 80% of his grind and mix volume is for hog feeders. The firm uses a Dodgen, 5 ton capacity V-bottom bulk truck and a Pamco equipped truck to make farm feed deliveries. Both trucks shuttle back and forth between Mt. Carroll and Shannon as needed seasonally.

The partners do an excellent business on pig starter which they make up at their mills. The formula is:

800 lb. rolled oats
700 lb. cracked corn
400 lb. Kent pig supplement
100 lb. Kent super 400

Each mill has Roskamp oat rolling and hulling equipment. The Shannon mill has two Roskamp rollers and can roll 1,500 bu. per day at capacity. Shannon also has two 3-ton Kelly Duplex mixers and a 75 hp. Jacobson hammermill. Mt. Carroll has a 75 hp. Jacobson hammermill and a 2-ton Kelly Duplex mixer, a Kelly hoist, two Universal elevator legs and a Zip corn sheller.

"We charge 15¢ cwt. for grinding fine," says Mr. Casselberry, "and 13¢ cwt. for coarse grinding. There is no mixing charge if the customer buys concentrate from us."

From both locations, a lot of cattle feeders are served. Cattle concentrate is a big seller. The largest herd served has 250 steers. Cattle feed customers who buy concentrates in large amounts receive discounts ranging from $3 per ton and up. Mr. Casselberry states that most cattle concentrate sales are in pellet form from both mills.

Advertising Feature

"One advertising feature we use is to give Kent jackets and caps to volume feeders," says Mr. Casselberry. "And feeders like them. The jackets are bright and snappy and make quite an impression."

In addition, the partners do some newspaper and direct mail advertising in the area. Most newspaper copy goes into local weeklies with a proved rural readership.

Credit System

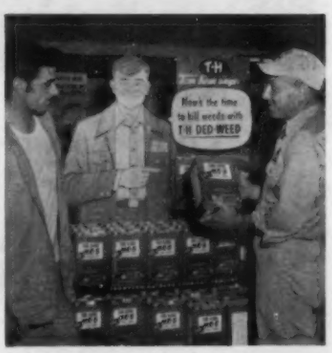
To date, the firm has its collection policies working very efficiently, with few delinquent accounts. If a customer pays his feed bill by the 10th of the month following purchase, he gets a 1% discount. The man who does not pay his bill by the 10th of the month is charged 1% per month interest until it is paid.

"A number of feeders like to get that 1% cash discount," says Mr. Casselberry. "It helps to hurry up payments and reduces delinquent accounts."

The two partners operate with two men at each mill in addition to themselves, but occasionally they hire part time help when rush work develops. Neither plant operates on a grain bank plan, and quite a few farmers bring their grist to be ground, rather than have the feed firm call for the grain.

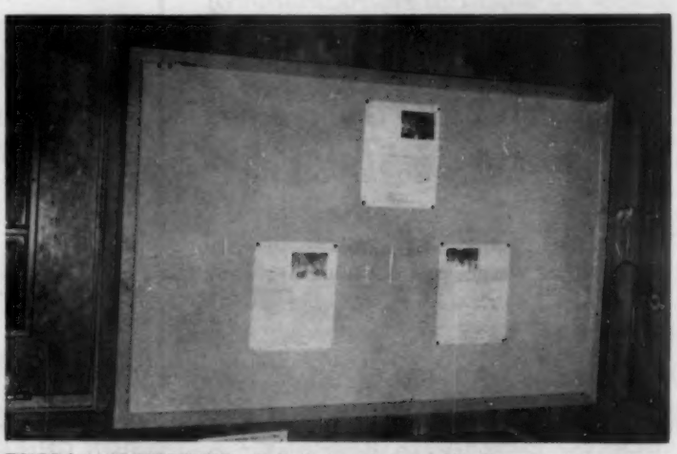
During the past year, the partners established a bulk feeding storage depot at Shannon. It includes three Butler steel tanks, each holding 22 tons. One tank holds cattle feed, another cattle feed with stilbestrol, and the third holds hog fattener. With such storage facilities, the firm is

(Turn to **TERRITORY**, page 56)

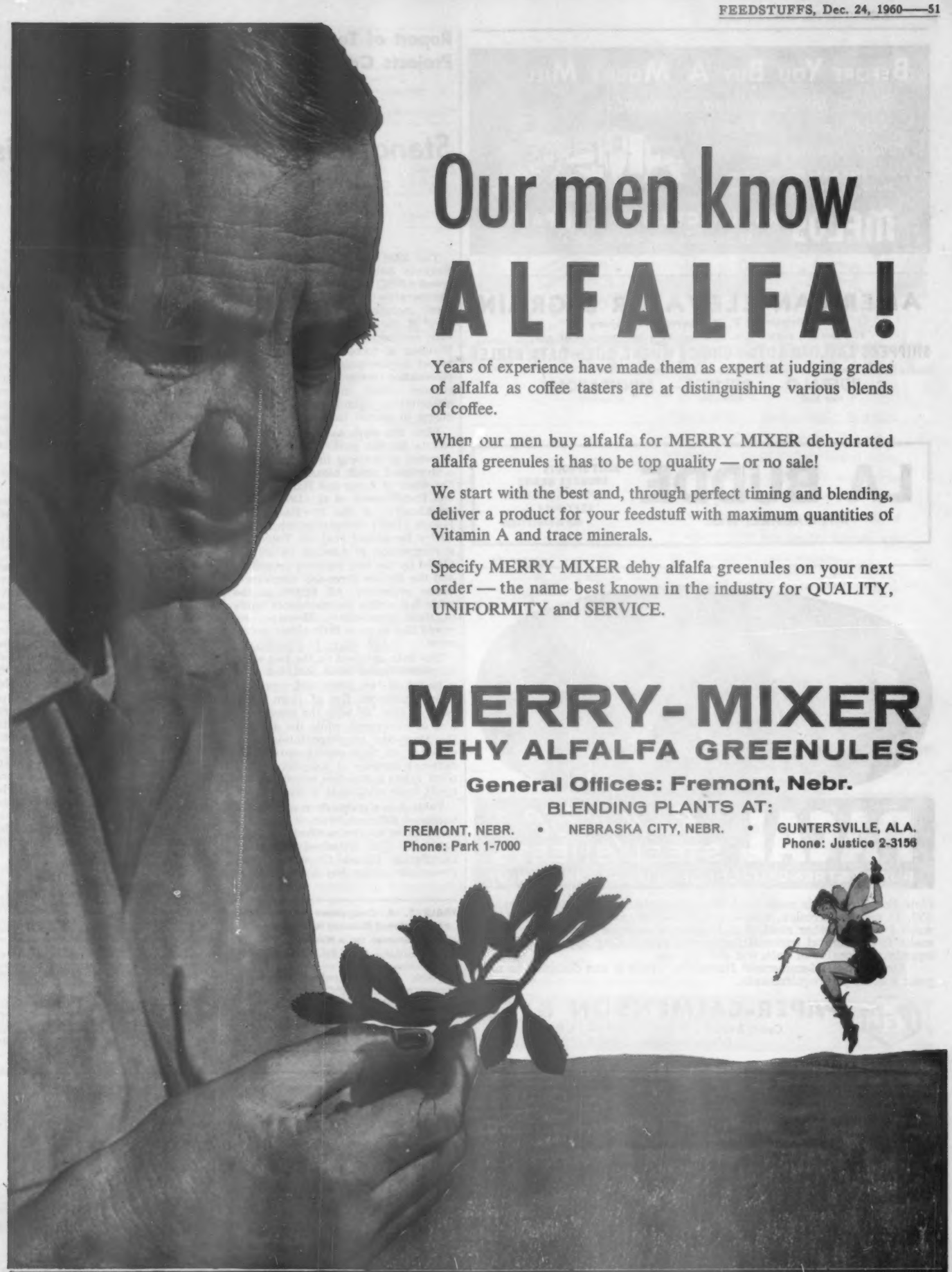


FARM SUPPLY BUSINESS — Don Casselberry, right, partner and manager of the Mt. Carroll plant, is pictured with customer in the firm's farm supply store which brings in extra business and added profit.

A BUSY FIRM—Don Casselberry is pictured drawing off grain from wooden bin for mixing.



DISPLAY ADVERTISING—Bulletin board at the Mt. Carroll mill is used to advertise Kent feeding records. Featured many times are pictures of customers' feeding projects which depend on Kent feeds.



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When our men buy alfalfa for MERRY MIXER dehydrated alfalfa greenules it has to be top quality — or no sale!

We start with the best and, through perfect timing and blending, deliver a product for your feedstuff with maximum quantities of Vitamin A and trace minerals.

Specify MERRY MIXER dehy alfalfa greenules on your next order — the name best known in the industry for QUALITY, UNIFORMITY and SERVICE.

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Report of Technical Projects Committee on . . .

VITAMIN E
Standards, Methods of Analysis

By Dr. L. D. Matterson
and Martha Wilcox Dicks
University of Connecticut

EDITOR'S NOTE: This article by Dr. Matterson and Miss Dicks of the University of Connecticut's poultry science department was originally presented as a paper at the 1960 annual meeting of the Animal Nutrition Research Council in Washington, D.C. ANRC papers which appeared in earlier issues of Feedstuffs concerned vitamin D bioassay, measuring protein quality and trace element nutritional values. Additional articles in this series will cover proposed reference standards for vitamins A and K.

The 1959 report of the Technical Projects Subcommittee on "A Proposed ANRC Reference Standard and Comparative Studies With Other Esters" included a comprehensive review of the literature on the structure, synthesis, chemical analysis and bioassay of tocopherol along with a report emphasizing the importance of eliminating natural occurring substances which interfere with the quantitative determination of tocopherol in animal tissue.

With this work as background, our efforts for the past year have been directed at proving the reliability of a shortened chick bioassay based on the work of Ames and Harris (1956) and Pudelkiewicz et al. (1960) and a modification of the Bro-Rasmussen-Hjarde (1957) chromatography method for tocopherol analysis. Table 1 is a comparison of relative values obtained by the long bioassay procedure and the shorter three-day supplementation procedure. All figures in the table fall within the confidence limits of their counterpart. However, we would like to see a little closer agreement.

The data obtained on the two-week supplementation were obtained over a period of two years and represent seven replicates, five of them replicates in time, all with the same samples of tocopherol, while the data on the three-day supplementation were obtained on four experiments using different samples of tocopherol. This point raises a question which we feel needs some additional study.

Table 2 is a comparison of relative values of different forms of tocopherol obtained by two methods of analysis: (1) The Standard Molecular Distillation - Florex Chromatography Procedure, which has been used by Quaife and Harris (1946) and Pudelkiewicz et al. and (2) the proposed chromatography* method, which is a modification of the Bro-Rasmussen-Hjarde method (1957a,b).

It can be seen from Table 2 that, within experimental error, we have obtained essentially the same relative values by use of either method of chemical analysis.

Each of the two methods has its critics. Molecular distillation calls for a considerable investment which most laboratories feel they cannot justify for intermittent use. Chromatography procedures, although requiring less of an initial investment, are just as time consuming and, for routine analysis, just as expensive due to the quantities of chemicals necessary for purification of reagent and adsorbent. There is also the additional disadvantage that different batches of adsorbent are not uniform and require technicians of just as high degree of attainment as does the molecular distillation method, if one is to obtain reliable results.

TABLE 1. A Comparison of the Long and Shortened Bioassay for Tocopherols
Bioassay for A-Tocopherols
(Equimolar Basis) Relative Values

Two-week	Supplementation	Three-day
1.00	dl,a-tocopheryl acetate	1.00
0.99	dl, a-tocopherol	0.96
1.34	d,a-tocopheryl acetate	1.21
1.32	d,a-tocopherol	1.25

REFERENCES
Ames, S. R., and Harris, P. L., 1956—Slope-ratio liver-storage bioassay for vitamin A; Anal. Chem., 28:874-878.
Bro-Rasmussen, F., and Hjarde, W., 1957a—Determination of alpha-tocopherol by chromatography on secondary magnesium phosphate; Acta Chem. Scand., 11:34-43.
Bro-Rasmussen, F., and Hjarde, W., 1957b—Quantitative determination of the individual tocopherols by chromatography on

*Mimeographed directions for the chromatographic method using secondary magnesium phosphate will be available shortly and may be obtained by writing to L. D. Matterson, Box U-17, University of Connecticut, Storrs, Conn.

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TABLE 2. Comparison of Two Methods for Purification of Liver Extracts for the Determination of Tocopherol

Molecular Distillation—Florex Chromatography		Saponification—$MgHPO_4$ Chromatography	
One Short Chick Liver-Storage Bioassay Experiment			
Slope	Relative value*	Slope	Relative value*
	dl,Alpha-tocopheryl acetate		
0.318	1.01	Nu302	0.330	1.02
0.367	1.17	T-2-258	0.366	1.14
0.283	0.90	G-1-211	0.282	0.88
0.286	0.91	E-94	0.308	0.96
	dl,Alpha-tocopherol		
0.278	0.89	G-1-210	0.307	0.96
	d,Alpha-tocopheryl acetate		
0.432	1.38	K-1898	0.423	1.31
	d,Alpha-tocopherol		
0.426	1.36	Beadlet	0.421	1.32
	d,Alpha-tocopheryl acid succinate		
0.202	0.64	K-1899	0.244	0.76
	Standard Error of the Slope		
±0.018			±0.018	

*Slope of response from respective sample/average slope of response from the four dl,alpha-tocopheryl acetate samples.

The Dose-Response Experiment for the Short Chick Liver-Storage Bioassay

Slope**	Y-intercept**	Regression	Slope**	Y-intercept**
0.366 ± 0.003	2.9 ± 0.8	(Mcg./g.)	0.355 ± 0.003	3.3 ± 0.9
0.854 ± 0.015	—0.10 ± 0.02	(Log. mcg./g.)	0.852 ± 0.016	—0.10 ± 0.03

**With their respective standard errors.

Precision of These Analytical Methods		
	Range of liver concentrations	
2.3-47.9	(Mcg./g. liver)	2.2-63.3
	Average liver concentration	
22.1	(Mcg./g. liver)	22.6
46	Number duplicate analyses	46
2.533	Duplicate variance	2.176
	F Ratio	
	1.16	
	Coefficient of variation	
7.2%		6.5%

secondary magnesium phosphate; Acta Chem. Scand., 11:44-52.

Pudelkiewicz, W. J., Matterson, L. D., Potter, L. M., Webster, L., and Singsen, E. P., 1960—Chick tissue-storage bioassay of alpha-tocopherol: chemical analytical techniques, and relative biopotencies of natural and synthetic alpha-tocopherol; J. Nutrition, 71:115-121.

Quaife, M. L., and Harris, P. L., 1946—Molecular distillation as a step in the chemical determination of total and gamma tocopherol; Ind. Eng. Chem. Anal. Ed., 18: 707-708.

NEW TWINE DISTRIBUTOR

MINNEAPOLIS—The United Rope (Holland) Distributors, Inc., Minneapolis, has been named sole distributor of Holland Extra Baler Twine and Prime Standard Binder Twine. The new corporation, owned by the United Ropeworks of Rotterdam, Holland, will be managed by Joseph Urista, who has been well-known in the twine business for over 10 years. Greenfield Supreme Baler and Binder Twine, made by the Le Lis Mill of Hamme, Belgium, will also be distributed by the new company. It is now establishing jobbers and dealers in the middle western and southern sections of the U.S.

Packers Lose Bid To Lift Court Order

CHICAGO—Efforts of three of the nation's largest meat packers to lift their 40-year anti-trust consent decree have come to naught.

Federal Judge Julius J. Hoffman, recently issued a decision denying a petition by Armour & Co., Swift & Co. and Cudahy & Co. to change the earlier decree which limits their scope of operations. The judge agreed with a suggestion that "permitting the petitioners to now go into other lines of business than meat packing would be tantamount to permitting the Standard Oil trust to reassemble."

The decree operates as a restraint and a fetter to preserve the balance of competitive power. The present action, started by Cudahy in 1956, and joined later by Armour and Swift, sought the right for the meat packing firms to deal in groceries and dairy products without restriction, the right to reacquire interests in grocery concerns and the right to sell meats at retail. The three firms slaughter more than 40% of commercial livestock.

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State_____

Ohio Feed, Grain Men Warned Of Need for Changes in Future

By AUSTIN SHOWMAN
Ohio State University

COLUMBUS, OHIO.—The successful businessman of the 1960's, whether he be a farmer, an elevator operator, a feed manufacturer, or a retail store owner, will be the one who gears his operations to market demands.

He will have to make some changes in the next ten years, probably some major changes—and they won't be easy. The years ahead will be filled with confusing, perplexing situations which will see experienced businessmen moving in opposite directions to achieve the same ends.

This forecast comes from the combined opinions of speakers who appeared at a recent marketing conference at the Ohio State University in Columbus. The conference was sponsored by that institution's department of agricultural economics and rural sociology.

Addressing grain, feed, and farm supply representatives at the conferance, D. M. Mennel, president of the Mennel Milling Co., Fostoria, Ohio, called attention to the "bewildering complex" in the feed and grain business.

"While some feed milling companies are decentralizing," he said, "others are building more capacity into their present plants. While railroads merge, truckers and independent driver-operators increase. While terminal elevators build bigger and faster driers, so do country elevators and farmers buy farm driers."

Mr. Mennel called for an alertness to change, but he also pointed out that there is tremendous danger in acquiring a "change-for-change's-sake psychosis."

A change referred to by another speaker, Earl F. Davidson, elevator operator of West Liberty, concerned wetter harvesting of wheat, oats, and corn by farmers in an effort to get substantially higher yields and greater net returns per acre.

Mr. Davidson said: "Unless we, as grain men, stop fighting this trend and immediately gear our houses with larger, faster hoists; bigger dump pits; quicker, more economical elevator legs; huge capacity cleaners or scalpers; more and larger driers for handling multiple harvests or more than one grain at a time, then our grain farmers will drive past us to more distant markets."

He said that if the grain elevator, feed and farm supply store go out of business, it is because they failed to keep abreast and ahead of the rapidly changing needs and demands of progressive customers. He said he believed direct selling and direct buying are a problem today because "we failed to keep ahead of our customers or to fill the needs of our buyers, not because Mr. Terminal, Mr. Feed Manufacturer, Mr. Soybean Processor, or Mr. Flour Miller wanted to buy or sell direct."

Appearing as panelists with Mr. Davidson to discuss "The Challenge of the Sixties" were Nelson Cotton of the Ohio Farmers Grain Corp., Fostoria, Ohio, and Don Vogle, Ralston Purina Co., Circleville, Ohio.

Traditional methods of marketing grain are changing rapidly, and because of these changes adjustments must be made, Mr. Cotton told his audience.

"We can best do our job and aid our farmer producers," he said, "by providing the facilities and services they will require. Competition will force us to do this as economically as possible."

"Buying" Feed Business

Mr. Vogle said he saw a dangerous trend among feed manufacturers in the temptation to "buy" business. "By this I mean the establishment of unsound credit policies," he said, "the offering of deals or guarantees; the financing of chicks, poults, equipment, labor, houses, or what have you; the establishment of reckless bookings which either cannot be uncovered or are not intended to be enforced; and so on through the many other schemes that we, as an industry, seem to have come up with.

"I believe this can be a dangerous trend to the manufacturer," he continued, "one that could result in a loss of market power rather than a strengthening of market power. Yet, wisely applied, in certain situations and under certain conditions, any one of these must be recognized as a tool that can increase market power."

Perhaps no segment of the industry has been so flooded with the credit financing programs of which Mr. Vogle spoke as the poultry industry. Persons attending a poultry section of the conference heard panel members comment on this and other subjects. The panelists included Harvey Eisenstadt of the J. O. Frank Co., Dayton, Ohio; Irvin Grassbaugh, Buckeye Turkey Hatcheries, Inc.,

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OVERALL OUTLOOK on industry developments comes to you weekly . . . while it's still news in FEEDSTUFFS

Danville, Ohio; Max Kernen, McMillen Feed Co., Marion, Ohio, and John Weaver, Weaver Brothers, Inc., Versailles, Ohio. The J. O. Frank Co. is a poultry processing firm and Weaver Brothers, Inc., an egg buying establishment. Bruce R. Davisson, executive secretary of the Ohio Poultry Assn., served as moderator.

Statements by panelists indicated these trends:

1. Grower operations will get larger, producers fewer.

2. Vertical integration will continue to grow in the broiler business. It's now in the contract stage and is moving toward direct ownership by various agencies extending credit.

3. Poultry and egg producers will become more cost conscious. They'll need more business management know-how than ever before.

4. There still will be a place for the independent poultry producer in the 1960's, but he'll have to give more consideration to marketing. Some may have difficulty finding satisfactory markets.

Oregon Fryer Group Backs Label Program, Work-Together Idea

SALEM, ORE. — Representative producers, hatcherymen, feed mixers and poultry processors at an inter-industry frying chicken advisory committee meeting here, urged more backing of the Oregon Fryer Commission's all-out campaign for selling fresh dressed Beaver state produced chickens.

They agreed to push the labeling campaign which gives Oregon homemakers a choice between a fresh, locally produced product, and one that has been in transit several days.

It was emphasized at the gathering that the day is past when growers, hatcherymen, feed men or processors "can go it alone." During this age of industry integration, it was agreed that "everyone must work together towards turning out a top quality, competitively priced chicken."

"We are all after the same thing—a better price for the frying chicken producer and a more stable market," emphasized Steve Brody, Oregon Fryer Commission manager.

A highlight of the meeting was a report by Barney Ojendyk, Portland, Bridgmon Poultry Co., manager, on his recent tour of the Kentucky, Tennessee, Alabama and Mississippi frying chicken producing districts.

"The southern states' fryer chicken deal is not only 100% integrated, but it is very competitive and there is every indication that many processors are getting ready for expansion when their market so demands," stated Mr. Ojendyk. "Most of the new plants visited were capable of processing 4,000-5,000 birds an hour with one new plant able to turn out 12,000 birds in 60 minutes."

Inter-industry meetings will be held monthly to work toward the economic advancement of Oregon's fryer industry. Manager Brody stressed the importance of the fryer business in the industrial expansion of Oregon.

Results of Broiler Housing Tests Told

MEMPHIS, TENN.—How broilers responded to four different types of housing in tests at the University of Arkansas Agricultural Experiment Station, was reported at the winter meeting of the American Society of Agricultural Engineers.

T. R. C. Rokeby, associate agricultural engineer at the experiment station, told those attending the meeting that the four types of houses studied were: Air-conditioned, fan-ventilated, naturally-ventilated with asphalt roll roofing covering, and improved natural-ventilation with aluminum covering.

Researchers recorded live weight, feed conversion, and mortality of eight- and nine-week-old broilers raised in the test houses during seven seasons.

Mr. Rokeby gave the following results from tests conducted:

"In summer tests, birds grown in the air-conditioned and fan-ventilated houses were significantly heavier than birds from the naturally ventilated houses.

"In the fall and winter tests, birds from the naturally ventilated houses were significantly heavier than birds produced in the mechanically ventilated houses. These results were in spite of wide temperature fluctuations in the naturally ventilated houses. The greater ammonia and dust concentrations in the mechanically ventilated houses may have cut production," he explained.

"Feed conversion averaged slightly better for birds grown in the naturally ventilated houses covered with asphalt roll roofing than birds grown in the other houses for the seven tests. However, no significant difference in feed conversion between houses was evident in any one test.

"No significant effects on mortality resulted from the different levels of housing," Mr. Rokeby summarized.

R. M. Smith, poultry husbandman with the Arkansas Station, was co-author of the paper.

Omaha Grain Exchange Elects New Officers

OMAHA—Robert M. Scoular, president of Scoular Bishop Grain Co., has been elected president of the Omaha Grain Exchange.

Other new officers are H. C. Christiansen, Sr., first vice president; E. J. Kaura, second vice president, and H. B. Waller, treasurer.

Mr. Scoular, A. W. Nielsen and J. W. Holmquist were reelected to three-year terms as directors. J. J. Sullivan was named to a one-year term.

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INQUIRIES APPRECIATED

TERRITORY

(Continued from page 50)

better able to buy and store larger quantities of feed and to supply farmers more quickly.

Resale work on feeds is done by both partners with the aid of Kent salesmen. Small and large feeders in the double trade area are visited regularly and their feeding needs analyzed. This on-the-spot feed selling works very well, states Mr. Casselberry.

At Mt. Carroll, the partners have a sizable, well stocked farm supplies store which farmers patronize often. Seasonal items such as twine, fertilizer, farm chemicals, etc., are stocked and constantly called to the attention of farmers. Such sales suggestions result in extra sales, says Mr. Casselberry. On the wall of the store there is a large bulletin board containing posted records and pictures of customer feeding projects using Kent feeds.

"The idea of having two mills is working," says Mr. Casselberry. "We are actually developing two overlapping trade areas and we have the value of mutual buying advantages and work-swapping possibilities."

FEED MIXER — Photo shows Don Casselberry working with a feed mixer at the Mt. Carroll mill. Equipment from both mills helps serve two areas.

Wallace & Tiernan Executive Dies at 49

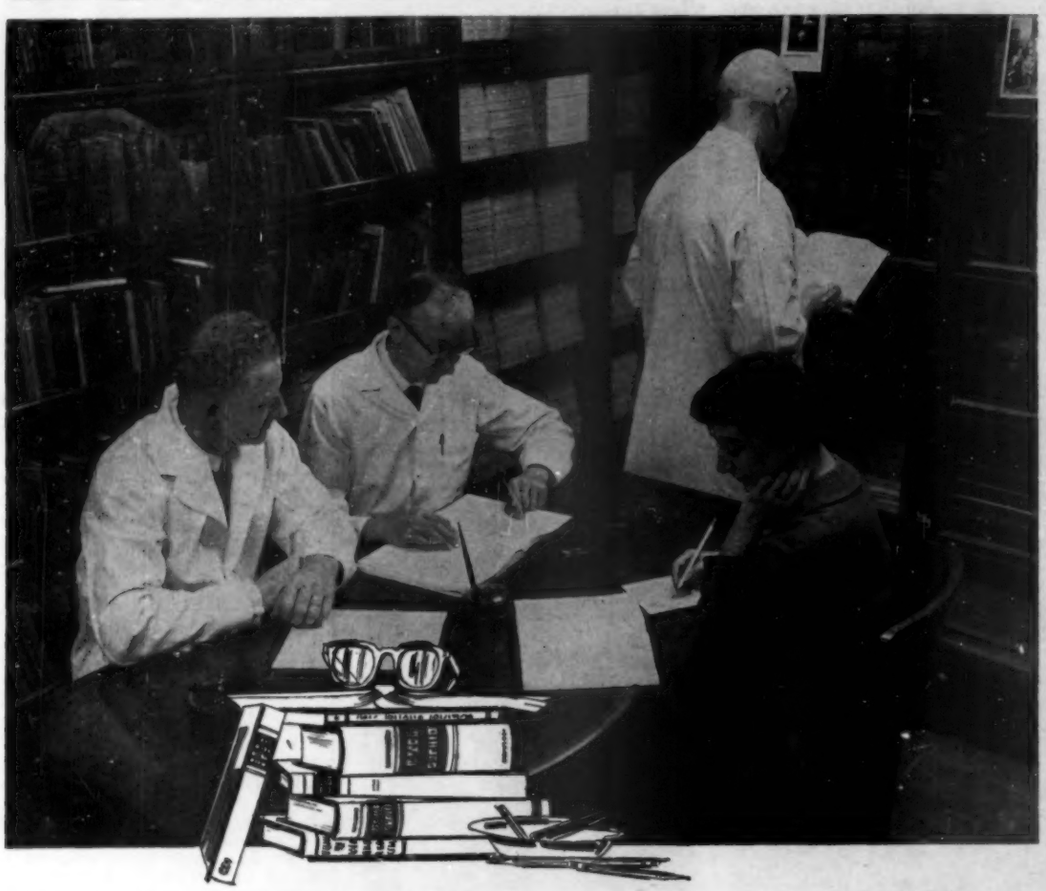
WAYNE, N.J. — Charles A. Rowe, manager of the Dry Feeder Division of Wallace & Tiernan, Inc., died at his Wayne, N.J., home. Mr. Rowe was 49. He had been ill for several months.

Charles A. Rowe

Born in Jersey City, N.J., Mr. Rowe attended high school and college there. He joined Wallace & Tiernan at its headquarters in Belleville, N.J., in 1940. Prior to service in the Army, he gained a wide familiarity with technical aspects of materials handling. After service he rejoined Wallace & Tiernan's Merchen feeder department as a service man, and later as a salesman covering all areas of the country. He was promoted to manager of the Dry Feeder Division in January, 1959. He is survived by his widow, one son and one daughter.

Southern States Post

RICHMOND, VA. — Robert W. Dickson, former business manager in the feed division of the Lindsey-Robinson Co., Roanoke, has been named a feed supervisor in the Richmond region for Southern States Cooperative. Mr. Dickson was associated with the Virginia Polytechnic Institute extension service for 14 years and was executive secretary of the Virginia State Milk Commission in 1944-47.



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(Continued from page 11)

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IRON REQUIREMENT AND EFFECT OF B-VITAMINS ON THE PERFORMANCE OF GROWING LAMBS—W. H. Smith, M. J. Lawlor, M. P. Plumlee and W. M. Beeson, Purdue: Apparently the iron requirements for a feeder lamb can be met adequately with a level of 70 p.p.m. Increasing the level to 140, 210 or 280 p.p.m. by supplementation was not advantageous. In fact, the higher levels of iron resulted in scouring and lowered daily gains. Supplementary B-vitamins resulted in increased daily gains except that in the presence of supplementary zinc, a growth depression resulted. Zinc in the absence of supplementary B-vitamins resulted in an increase in daily gain.

Energy

CATION-FAT EFFECT ON CELLULOSE DIGESTIBILITY BY SHEEP—R. B. Grainger, M. C. Bell, J. W. Stroud and F. H. Baker, Kentucky: The addition of 7% corn oil to a semi-purified ration significantly reduced the apparent digestibility of calcium and cellulose. Distillers dried solubles added to the basal ration significantly increased calcium and cellulose digestibility. The addition of calcium and iron to the diet partially alleviated the corn oil effect whereas potassium aggravated the corn oil effect.

EFFECT OF PROTEIN : ENERGY RATIOS ON THE PERFORMANCE AND CARCASS QUALITY OF FATTENING LAMBS—R. H. Olsen, R. G. Holleman, D. L. Staheli and L. H. Horn, Swift & Co., Chicago: Increasing the level of energy from 650 to 700 kilocalories per pound of feed or increasing the level of protein from 12 to 14% for feeder lambs fed a corn, alfalfa hay, molasses and soybean oil meal ration was without apparent effect on the rate of gain. Furthermore, there was no apparent interaction of level of energy and level of protein, at the levels tested.

PERFORMANCE CHANGES IN LAMBS FED CONCENTRATE AND ROUGHAGE AT VARYING TIMES—R. L. Preston and W. H. Pfander, Missouri: It apparently makes a difference as to the sequence followed in feeding the concentrate and roughage to feeder lambs. Four methods of feeding were tested, as follows: 1, roughage (a.m.) concentrate (noon) roughage (p.m.); 2, roughage (a.m.) concentrate (p.m.); 3, concentrate (a.m.) roughage (noon) concentrate (p.m.), and 4, complete ration (a.m., p.m.). Treatments 3 and 4 resulted in highest average daily gain. Also, carcass grades and dressing percent were highest in treatments 3 and 4.

RESPONSE OF LAMBS TO ENERGY AND PROTEIN LEVELS, HORMONE IMPLANTS AND ENZYMES—John C. Rea and C. V. Ross, Missouri: Lambs on high energy rations gained significantly faster than lambs on lower energy rations. Lambs on 14% crude protein gained faster than those on 11%. High energy and high protein resulted in faster gains and higher carcass yields than any other combination of energy and protein. Implanting with hexestrol resulted in some improvement in efficiency factors, when compared with stilbestrol.

Miscellaneous

PHENOTHIAZINE VERSUS METHYLPHOSPHORAMIDATE AS AN ANTHELMINTIC FOR LAMBS—C. V. Ross and Melvin R. Karr, Missouri: Ruelene was superior to phenothiazine as an anthelmintic for grazing lambs. In addition to a more thrifty appearance, lambs treated with Ruelene had less than one third the worm eggs in their feces and gained more rapidly than those treated with phenothiazine.

PERFORMANCE OF ANNUAL CROPS AS PASTURE FOR EARLY WEANED LAMBS—W. F. Wedin and R. M. Jordan, Minnesota and USDA: Performance of early-weaned lambs grazing five replicates of annual pastures was reported. Crops tested were (1) oats-rape, all summer grazing, (2) peas, early summer, followed by solid seeded corn and (3) oats-peas early summer, followed by sudan grass. Lambs pasturing a combination of oats-peas gained faster than lambs pasturing peas. Average total gain in pounds of lamb per acre for the three combinations was: oats-rape, 313; peas-corn, 286, and oats-peas, sudan grass, 291.

Plans Announced for Tenn. Laying Test

KNOXVILLE, TENN. — The fifth Tennessee Random Sample Laying Test will be initiated when eggs are set March 7, 1961, and terminated Aug. 22, 1962, the date when stock will be 500 days of age, it was announced by the University of Tennessee poultry department.

Objective of the test is to evaluate stocks available to Tennessee poultrymen in respect to livability, egg production, egg quality, cost of production, and returns over feed costs.

Any individual, firm, or organization offering baby chicks or hatching eggs to Tennessee poultrymen, is eligible to enter stocks in the test.

Application blanks and additional test information may be obtained by writing Dr. O. E. Goff, head, poultry department, University of Tennessee, Knoxville 16, Tenn.

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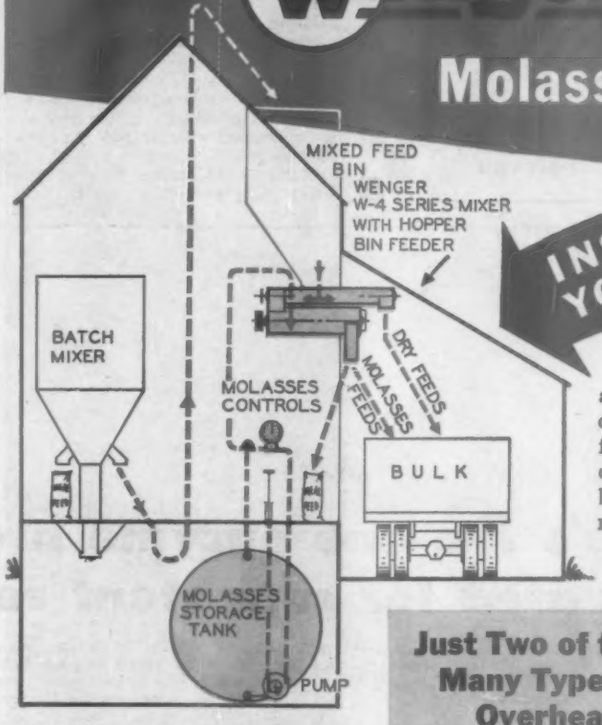


INSTALLED OVER YOUR DRIVEWAY

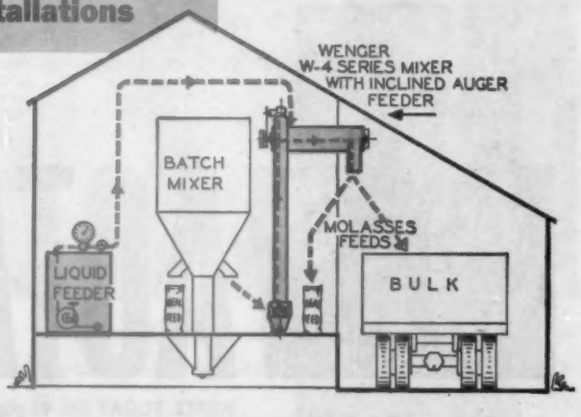
Apply molasses to meal feeds as feeds are loaded into bulk trucks, or convey back inside of feed mill for molasses feeds to be delivered in bags. Application of molasses just as feeds are delivered into bulk trucks eliminates problems of storing molasses feeds in bulk tanks.

Highest Peak of Efficiency — Greatest Economy — Fastest Rate of Delivery — May be Remotely Controlled

Just Two of the Many Types of Overhead Installations

ABOVE: W-4 Series Hopper Bin model available (optional) with reversible feeder, as above. Hence may deliver mixed feeds to the molasses mixer, or into bulk trucks directly for those feeds to be delivered in meal form without molasses. Models available from 3 tons to 40 tons per hour.

RIGHT: W-4 Series Molasses Feed Mixer equipped with an inclined auger feeder, and charged from vertical batch mixers. Eliminates need for an elevator leg. Models available with inclined auger feeders with capacities from 3 to 18 tons make outstanding installation in custom shops.



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Standard of the Industry for Liquid Feed Mixing, Pelleting and Cooling Equipment

JOE BROOKS

BY AL P. NELSON

Customers Are People

The winter wind whipped at Joe Brooks and his employees and caused their teeth to chatter. The feed dealer and nine of his Hansen's Creek and Endeavor employees had just had a steak dinner at the Hotel Manitou—on Joe—and were on their way to the mill for a sales training session.

"I don't see why we can't drive," muttered Milt. "No use freezin'."

"Huh, the walk clears the cobwebs out of the brain and helps digestion," put in elderly Pop Henley. "And you won't fall asleep when Joe is talking."

Finally, storm coats off in the farm store, and rubbing their cold hands, the employees took their chairs, thankful for the warm air that began to soak into their icy clothes.

"Man," said Smiley Johnson, "what I wouldn't give for a feed store in Florida."

"Well, you ain't got one in Florida," Pop Henley growled. "We're in the Midwest, boy, and yuh better like it. If you can live and work up here you're a real man."

Joe held up his hand. "Boys, let's get down to business, which is, let's educate ourselves so that we get smarter saleswise, and make the profit dollars roll in faster. Which means more incentive pay for you fellows and a few extra profit pennies for me."

"Time to Get Serious"

"Yup," whispered Milt to Smiley Johnson, "time to get serious. Hope we finish soon, so I can still date my favorite redhead tonight."

"What did you say, Milt?" asked Joe.

Milt coughed. "I was just telling Smiley that these meetings are always so stimulating, Joe."

"Fine, that's the spirit."

Pop glared at Milt, but said nothing.

"Smiley," said Joe slowly, "when you walk into a department store and want to buy something, are you always satisfied with the way the clerk handles your request?"

Blond, good-looking Smiley was silent for a moment. "No," he said.

"Not all the time. Some clerks are fine; others don't seem interested in waiting on me, and I don't like that."

"Why aren't they interested in you as a customer?".

"Their attention is elsewhere, I suppose," Smiley said. "They daydream while you try to make up your mind."

Joe smiled. "Exactly, and no boss or clerk should daydream when he is waiting on a customer. Why not, Milt?"

Milt blinked. "W—well, I suppose because if you have the customer facing you asking for something, this is a swell chance for you to go all out on your selling, make the sale and coax some dollars out of his pocket."

"Aha," chuckled Joe. "So some of our precious sales training has sunk in. And, gentlemen, are you aware that the feed industry is now entering into a very competitive year, with many new trends and with customers demanding more attention and service?"

"I read it in the trade papers," Milt said gloomily. "But what can we do about it? We're workin' our bodies and brains overtime now tryin' to stay ahead of our competitors."

Again Joe chuckled. "That's what we think, fellows. But there are people who know more than we know about customers and how to serve them."

"Who?" asked Butterball innocently.

Reading Books

Joe slowly opened a big package on the counter. The men watched him as he brought forth six or seven books, with bright jackets.

"The men who wrote these books know a lot more about customers than we do," Joe said. "And we can learn from them."

He held up the books so the employees could see the titles. They included: "How to Handle People," "Customers Are Kings," "How to Win

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Friends," "Know Customer Wants," etc.

"In order to sell feed or any other farm supply item to a farmer, we have to know our customer and how he acts and reacts as a person," Joe said. "We have to know what makes him tick. What he likes and doesn't like. The professors who wrote these books know, they've studied customers and made valuable experiments."

"You mean," blurted forth Butterball, "you want us t—to read those books so we'll know customers better?"

Joe nodded slowly. "We've got to, if we expect to stay abreast or ahead of competition, boys. We want to use every selling and service tool available to us. And some of those tools are how to handle people."

"Whew!" said Milt. "Can't we read some other books in this course? I just finished 'Peyton Place.'"

"I read 'Anatomy of a Murder,'" Butterball said, "And I was scared."

"Reading like that is off bounds here," Joe said. "This is the Joe Brooks library. I'm going to require each of you to read two out of ten customer, sales and service books between now and April 15th."

A groan went up from some of the employees.

"And," said Joe, "I want each of you to write a 500-word book report on each book you read and get up and talk 10 min. on each book at a sales training meeting."

Another groan.

"I'm making it worth your while," Joe said. "I'm willing to invest $75 in this sales project. I'll gamble that I'll get it back in more and better results, more sales and more profit and more satisfied customers."

"Well, that's different," Milt said. He was full of attention. "I can use extra money. How are you splitting up that $75 prize money?"

Joe smiled. "Well, first prize will be $25. The second, third and fourth will be $10 each. There'll be four awards of $5 each. I've got ten employees between the two mills. That means eight will get money prizes. The two other men will get a $3 steak dinner each, which will cost me $6 extra over the $75 for cash prizes.

"Hey, I could use that first prize of $25," said Milt. "Who's the judge, Joe?"

"You men will be judges. You'll vote by ballot for the winners. I've got seven books with me tonight. I'll pass them out alphabetically. You may keep them two weeks and then return them, with a written report. Bill Mertes is home with the flu. I'm saving a book for him to read while he's in bed."

"Man," said Milt, "when we get through reading these books, Joe's customers will get treated better than any customers in the county, we'll be so smart. But I feel sorry for the rest of you guys, 'cause I'm gonna win that first prize."

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FEED CONTROL COMMENT

By BRUCE POUNDSTONE
Secretary, Association of American Feed Control Officials
Kentucky Agricultural Experiment Station, Lexington

When Is An Ingredient An Ingredient?

"Found but not guaranteed" is a statement that sometimes appears on reports of official samples analyzed by state laboratories. This would be used when an undeclared ingredient was detected.

The question on this point, raised at the states relations committee meeting in Washington in October, was "Should a formula feed be construed as being misbranded when undeclared ingredients can be detected?" What the questioner had in mind was clarified in an example of undeclared ground wheat, introduced as a component of ground commercial oats.

It is possible under the official grain standards to have a product classified as oats containing no more than 80% of oats and up to 20% of other grains. Suppose a formula calls for 500 lb. of oats. If this grade of oats (No. 4) were used, this quantity of oats might conceivably contain 100 lb. of wheat. This is highly unlikely, but such an amount could be easily detected in the final feed by a microscopist.

A manufacturer might feel it would be unjust to accuse him of selling a misbranded product as has been described. He may not have realized he was buying this combination of wheat and oats under the name of "oats."

It is probably difficult to find a grain that is not slightly contaminated. All wheat, for example, going into flour is carefully screened and cleaned before use. Presence of as much as 20% of a single grain, however, can hardly be accepted as a slight contamination.

Grain purchases, therefore, should be on the basis of a grade that will permit only small amounts of other grains. Number 3 grade permits only 10% other grains. Number 2 grade permits 6% other grains and Number 1 only 3%.

Ingredients measured by high standards should cause little or no trouble in this regard. Purchase of an ingredient with lower standards should alert the user to carefully determine what he is buying to see what possible contamination he may have. A grade 4 or a lower grade of any grain should automatically call for a determination of what may be in this "20%" of the product.

A product of this nature may be bought largely on the basis of price. "Pulverized Oats" are sometimes quoted at prices below the market quotation of good sound oats plus grinding and bagging. No one is fooled into believing this can be done. A second look is called for to determine what else is present in addition to oats.

Someone asks how does a feed manufacturer protect himself. The answer is simple. Purchase only from reliable suppliers and insist upon products coming up to specifications.

A large manufacturer recently mentioned he had put some soybean processors on his "black list" because their product did not meet his specifications. Proper specifications and the determination to abide by them, will go far in eliminating "found but not guaranteed" on official reports resulting from contamination carried into the feed from some other ingredient.

Fulton Co. Promotion

SHREVEPORT, LA.—The Fulton Co., Shreveport, announces the promotion of Bill Hayden to the position of sales manager of the company's eastern division.

"BROWER MIXER gives us better mixes and faster service to our customers"
Leslie W. Balzer
Yoakum Gin & Feed Co.
Yoakum, Texas

"Our Brower Mixers have increased both our feed profits and profits from custom mixing. We get better mixes and give faster service to our customers. The Brower Mixer is very economical, using a minimum amount of power to operate. There have been no repairs and no service problems. We have used Brower Mixers for the past 15 years."

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—says H. M. Perritt, Farm Service and Supply Co., Florence, Alabama

When Farm Service and Supply Company became a Purina Dealership five years ago, vacant land was purchased at the edge of Florence. Since there were no buildings, Dealer H. M. Perritt had the opportunity of erecting a Purina Service Center tailored to the needs of the farm community.

Geared to serve both the large operator and the part-time farmer, Farm Service and Supply Company has provided leadership to develop new and progressive agriculture. The Dealership introduced Pig Parlors to the area and it is developing a program of leasing sows. These activities have fostered pork production by bringing in better stock and new efficiency in getting hogs to market. The Dealership has encouraged egg production with caged hens and now feeds about 20,000 birds. Agriculture advancements that come from Purina Research are presented to farmers in group meetings and demonstrations.

Farmers who are benefited by these services express their appreciation by patronizing the Service Center, and their loyalty is helping Farm Service and Supply Company grow.

* * * *

"It would be pretty hard to get along without the help of Purina Salesman Harry S. Dunn," says Mr. Perritt. "He helps us with problem cases, guides our long-range planning, and is a 'partner' in our operations."

Pelleting was added to the Dealership's services to help farmers get more from their barley, a crop that is growing in importance. Hershel Imman operates the pellet mill.

Store Manager Robert Sharp is a graduate of the Purina Top-Level Sales School. All employees of the Service Center have had some phase of Purina training.

With more and more grain being raised in the Florence area, Check-R-Mix Service is of prime importance. Mill Foreman Glen Imman sees to it that correct Purina formulations are used.

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Classified advertisements received by Tuesday each week will be inserted for the issue of the following Saturday. Rates: 20¢ per word; minimum charge $3.00. Situations wanted, 15¢ a word; $2.25 minimum. In figuring cost of your classified ad . . . each word, abbreviation, telephone exchange and number, set of initials, or group of figures counts as a word. To the number of words in your want ad itself add six (6) words for your name and address or name and address of your firm. This applies for both direct-reply ads and for blind ads containing a box number. If an ad is keyed, care of Feedstuffs, 25¢ per insertion additional charged for forwarding replies. Commercial advertising not accepted in classified advertising department. Display advertising accepted for insertion at minimum rate of $13.00 per column inch. No discount on ads ordered for more than one insertion. All Want Ads cash with order.

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LARGE INTEGRATED ORGANIZATION IN New England desires veterinarian experienced with poultry. State age and qualifications. Address Ad No. 6453, Feedstuffs, Minneapolis 40, Minn.

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Man experienced in using liquid HCN and methyl bromide for grain fumigation, also custom rodent control. To organize and supervise new division for large chemical company doing business on a national basis. Send complete resume of background and experience and interview will be arranged promptly. Address Ad No. 6509, Feedstuffs, P. O. Box 67, Minneapolis 40, Minn.

We Need 4 Key Men

Due to growth and expansion, Major Midwest Feed Company serving livestock producers in Iowa, Illinois, Nebraska, Missouri, Minnesota, Wisconsin and South Dakota will soon fill four key sales-management positions.

The men we will place in these key jobs will be 30 to 43 years of age and will have both sales and management experience in the feed business or allied agricultural fields.

If you qualify you may expect annual earnings in the five figure bracket, excellent fringe benefits, and plenty of opportunity for growth.

You will be trained in our methods of sales and management before you are placed in one of these jobs. After your training you will join a management group of young, progressive, sales-minded people.

Please send complete resume including a photo of yourself. All replies held in strictest confidence.

Address Ad No. 6521, Feedstuffs Minneapolis 40, Minn.

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A poultry background is, of course, helpful. Your sales sense, however, is the most valuable asset. Write us about yourself today.

Address Ad No. 6515, Feedstuffs Minneapolis 40, Minn.

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FEED MIXER, 1-TON CAPACITY, GUARanteed first-class throughout, 5 H.P. motor drive. Address Ad No. 3479, Feedstuffs, Minneapolis 40, Minn.

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WANT OWNERSHIP—WISH TO WORK 3 to 4 years with owner learning business. College education. Experience in an agricultural industry. Address Ad No. 6501, Feedstuffs, Minneapolis 40, Minn.

REGIONAL SALES MANAGER OR FEED plant manager. Experienced in all phases of feed business including trouble shooter. Want to work with progressive company mainly hogs or cattle program. Location and salary open. Address Ad No. 6512, Feedstuffs, Minneapolis 40, Minn.

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WANTED TO BUY — RICHARDSON Scales, bag closing machines and other good mill, feed and elevator equipment. J. E. Hagan Mill Machinery, Jefferson City, Mo.

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FOR SALE—HARNEY CO. FARM SUPPLY, Burns, Oregon. Feed plant, steam roller, cubing equipment, farm store in 240x50 ft. building. 1,000 ton grain storage outside, on railroad. Also branch in Winnemucca, Nevada. See article Oct. 15, Feedstuffs, page 60. Owner Jack McAllister retiring. Contact: Jett Blackburn, Realtor, Burns, Oregon; Phone 7890.

FEED AND GRAIN BUSINESS IN SOUTHeastern Wisconsin. A proven money maker. Address Ad No. 6484, Feedstuffs, Minneapolis 40, Minn.

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WHIRLAWAY AIRBLAST CAR LOADERS, cast iron pulleys, new and used feed and elevator equipment. Hagan Mill Machinery, P.O. Box 574, Jefferson City, Mo.

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CHAMPION MOBILE GRINDER AND mixer mills. Champion Portable Mill Co., 2166 Como Avenue S.E., Minneapolis 14, Minn.

FOR SALE—CARTER DISC SEPARATOR 24-27; 10 bu. grain scale, in original crate; 2 ton Eureka horizontal mixer with 40 H.P. motor and drive. J. E. Hagan Mill Machinery, Hwy. 50 West, Jefferson City, Mo.

FOR SALE—ENCLOSED MOTORS; RICHardson scale; truck scales; hammermills; oat crimpers; horizontal and upright feed mixers; sewing machines; elevator legs; screw conveyors; molasses mixers and pellet mills. J. E. Hagan Mill Machinery, Box 574, Jefferson City, Mo.

FOR SALE AT AUCTION JAN. 25, 1961, 10 A.M., 240,000 bu. grain elevator with Shanzer drier, Crippen cleaner, oat clipper, heat detector cables, 20" hammermill, corn sheller, two feed mixers, bulk feed holding bins, RR receiving and loading, Richardson scales, power shovel, truck lift, two 1959 8-ton capacity bulk and bag trucks; 60 m. capacity truck scales, three acres land, two tenant houses, office building; four warehouses. Brochure on request. Swint Seed & Grain Co., Orchard Hill, Ga.; Phone Griffin 8-1373.

FOR SALE — TILT-UP RAILCAR AND truck dumper. Platform 63' 5" OA by 9' 10⅝". Adapt to 90 lb. rail flush with deck. Fitted with hydraulic operated retracting wheel and coupler chocks (separate). 58° tilt. Lift cylinders not included. For further information write: Boise Cascade Kraft Corp., P.O. Box 500, Wallula, Wash.

FOR SALE — "JAY BEE" ALL-IN-ONE Feedmaker mobile unit mounted on truck in A-1 condition—excellent buy. Address Ad No. 6520, Feedstuffs, Minneapolis 40, Minn.

FOR SALE — UNION SPECIAL SEWING machine No. 2100-B. Like new. Write to Earl Goodwine, Jr., Box 373, Hoopeston, Illinois.

FOUR USED LEHIGH SQUIRREL TYPE fans, two 6 ft. in diameter with 75 H.P. motors and two 5 ft. in diameter with 40 H.P. motors. Also two used Iron Fireman spreader stokers complete with grates, doors, motors and so forth. The A. B. Caple Co., Sta. A, Box 27, Toledo 5, Ohio.

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Valley Mills Names Thomas Allen to Post

VICKSBURG, MISS. — The appointment of Thomas V. Allen to the position of production superintendent of Valley Mills in Vicksburg, Miss., has been announced by V. C. Florian, general manager. Mr. Allen is a veteran of 26 years' experience in the feed milling industry.

T. V. Allen

He first became associated with the feed industry as a mill employee of the old Meridian Grain & Elevator Co., Meridian, Miss., in 1934. He rose through the ranks to become milling superintendent of this firm.

In 1951, when the Meridian Grain & Elevator Co. was purchased by another firm, Mr. Allen was transferred to Vicksburg as mill superintendent of a feed milling operation. He remained with this company until becoming associated with Valley Mills in March, 1960, as night mill superintendent.

In his new position, Mr. Allen will be responsible for the manufacturing and shipment of Grade A feeds, Val-E-Pep dog food and all other products manufactured by Valley Mills.

Arizona Firm Feeds Bermuda Grass Pellets

TOLLESON, ARIZ. — The Lakin Cattle Co., Tolleson, is keeping a close check on the feeding results it gets from experiments now under way with pelleted Bermuda grass. In addition, the firm is running a number of experiments with various weights of cattle and with various percentages of concentrates and minerals in the Bermuda grass based formulas.

L. C. Lakin of the Lakin Cattle Co., reports that they have installed a 100 h.p. Dual Speed California Pellet Mill to make the Bermuda grass-based pellets.

"We have found that straight Bermuda grass pellets, with the addition of around 5% molasses, are an excellent horse feed, too," says Mr. Lakin. "We have experimented with it on our own quarter horses, and are more than pleased with the results."

Standard Milling Post

BUFFALO, N.Y. — The Standard Milling Co. has named James E. O'Connell as general manager of its Standard elevator and grain division. He joined the company as assistant general manager here in 1956, after 10 years in the feed manufacturing business. The division operates 5 million bu. capacity terminal grain elevator on Buffalo River.

Mr. O'Connell succeeds William L. Rogers, Jr., a vice president of the company, who has been transferred to Pascagoula, Miss., to manage a new grain export elevator at that Gulf of Mexico port.

Firm Incorporates

LITTLE ROCK, ARK.—C. L. G., Inc., Springdale, Ark., has filed articles of incorporation with the Arkansas Secretary of State to "buy, sell, rent and improve agriculture property."

Stockholders of the new corporation were listed as Gene, C. L. and Luther George, operators of George's Feed Mills in Springdale.

The group was authorized 20,000 shares of $25 par value common stock. It listed $300 as its paid-in starting capital. Gene George was named as agent.

Putting Research To Work

BY SPENCER H. MORRISON, PH.D., D. V. M.

Effect of Recovery Interval of Irrigated Forage on the Performance of Grazing Steers.

● J. L. Hull, J. H. Meyer and G. P. Lofgreen, University of California, Journal of Animal Science, Vol. 19, No. 4, pp. 981-990, November, 1960.

ABSTRACT AND COMMENT

The effects of pasture management recovery intervals after grazing of 24, 30 or 36 days were investigated in relationship to their effects upon animal performance in this experiment conducted during 1957 and 1958. A uniform field of mixed pasture (1957-Orchardgrass and trefoil; 1958-Orchardgrass, trefoil and Ladino clover) was divided into 36 paddocks of approximately 0.4 acre each. Trials were started in May of 1957 and early June of 1958 and approximately equal intensity of grazing was secured between treatments by use of temporary fencing. Before pasturing started each year, the forages were clipped the proper number of days prior to the start of grazing to establish the desired days of recovery interval for the respective treatments. All plots had adequate fertilization and irrigation. The 1957 and 1958 trials were conducted similarly, except that in 1957 one group of steers on each recovery interval was supplemented with barley. The barley intake was controlled by varying salt levels between 8 and 20% in a barley-salt mix. Although an attempt was made to achieve equal intake of barley on each recovery interval, actual intakes were 5.2, 3.9 and 5.5 lb. per steer per day on the 24, 30 and 36 recovery intervals, respectively.

Clipping Technique

Production of the total forage was estimated by the clipping technique and the consumption was measured by the chromogen-chromiun oxide technique. Before the steers entered a pasture 5-10 areas of 18 sq. ft. each were clipped at random in each pasture. Dry matter and species determinations were made and the samples analyzed chemically (composite sample). Digestibility and forage consumption were measured at three approximately equal intervals in each experiment. Behavior studies of the steers (three per treatment in each replicate) were made in 1957. The body composition of all steers was calculated at the end of the experiment from specific gravity determinations made on the right half of the carcass.

It was shown that in both years on the irrigated vegetative stage pasture used in this experiment that lignin did not appreciably change with increasing recovery interval. Furthermore, crude protein and TDN content also showed only minor increases. The persistence of trefoil increased with the longer recovery periods, but as the grazing season progressed the total number of trefoil plants per unit area decreased in all treatments, showing that trefoil was a poor competitor under these conditions. Adding the Ladino clover to the mix in 1958 resulted in a more uniform herbage throughout the season. The daily growth of the plants averaged greater with the longer recovery period, especially during the early part of the season.

Average Daily Gains

The average daily gains from the various treatments were: 24 day recovery interval, supplemented (1957) 1.88 lb., unsupplemented (1957) 1.52 lb., unsupplemented (1958) 1.61 lb.; 30 day recovery interval, supplemented (1957) 1.65 lb., unsupplemented (1957) 1.52 lb., unsupplemented (1958) 1.56 lb.; 36 day recovery interval, supplemented (1957) 1.71 lb., unsupplemented (1957) 1.46 lb., unsupplemented (1958) 1.42 lb. Increased gains from supplementation were highly significant but, although the daily gains were somewhat lower on the 36 day recovery interval, this difference was not statistically significant. The barley supplement not only increased the daily gains but it also caused a greater proportion of the gain to be distributed in the dressed weight and resulted in deposition of a higher energy gain.

In both years the forage and TDN intakes tended to be higher on the 24-day recovery interval than on the 30 or 36 day intervals. However, the differences were not statistically significant, and it appears that when a very vegetative type of forage, as used in these trials is offered to steers, factors other than animal response will have to determine the rotational intervals within 24 to 36 days when accompanied by good fertilization and irrigation. It is also of interest to note that in 1957, the supplemented barley-fed steers spent 3.5 times as much time eating supplement during the fifth day on a pasture as during the first day. The unsupplemented animals spent more time grazing and less time idling than those receiving the barley.

Although these results are of interest to those farmers using very high fertilization and/or irrigation to maintain meadow crops in a high state of vegetative growth, the data probably do not apply when the forage is not kept at a vegetative stage. We need more data of this type to determine proper agronomic management methods to be used for top animal production. In the past, top agronomic management has not always meant top livestock yields.

◆

Timely and Worth Noting

One of the best review articles I have seen published in recent years is entitled "Continued Progress Toward Controlling Bloat. A Review," by H. H. Cole and J. M. Boda and appearing in the November 1960 issue of the Journal of Dairy Science (Vol. 43, Nov. 11, pp. 1585-1614). It offers one a quick and concise review of much of the recent research in the field plus offering some pertinent observations by these workers at the California station. Since bloat continues to be a great problem for farmers and feedmen alike, this should be required reading!

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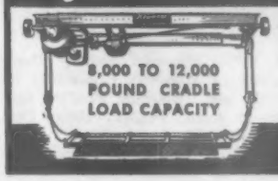

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Convention Calendar

New Listings

For the convenience of readers who scan the Convention Calendar regularly for new listings, those added to the column is the current week appear separately from ones which have been entered previously. The following week they will be moved to their proper slot where they will remain until the event is held.

Feb. 9-10—Utah Feed Manufacturers & Dealers Assn., Annual Meeting and Nutritional Conference; Newhouse Hotel, Salt Lake City; sec., Dr. Lawrence Morris, Brigham Young University, Provo.

Feb. 13-14—Carolina Grain & Feed Dealers Assn.; Charlotte Hotel, Charlotte, N.C.; sec., Wm. E. Lane, North Carolina Department of Agriculture, Raleigh.

April 6—Feeders Day; University of Nebraska Experiment Station, North Platte; James C. Adams, Supt.

April 7—Missouri Livestock Day; University of Missouri, Columbia.

April 20—Nebraska Beef Cattle Feeders Day; University of Nebraska, Lincoln; Dr. R. M. Koch, chairman, animal husbandry department.

June 19-21—American Association of Feed Microscopists Annual Meeting; Continental Denver Motor Lodge, Valley Highway and Speer Blvd., Denver, Colo.; sec., G. M. Barnhart, Missouri State Department of Agriculture, Jefferson City, Mo.

June 19-24—Feed Microscopy Short Course, sponsored by American Association of Feed Microscopists; Continental Denver Motor Lodge, Valley Highway and Speer Blvd., Denver, Colo.; sec., G. M. Barnhart, Missouri State Department of Agriculture, Jefferson City, Mo.

Sept. 11-13—Feed Production School; Continental Hotel, Kansas City; sponsored by Feed Production School, Inc., pres., Lloyd Larson, 20 W. 9th St. Bldg., Kansas City 5, Mo.

Jan. 4—California Egg Month Kick-off Luncheon; Statler-Hilton Hotel, Los Angeles; sec., California Egg Council, Willard Smith, 3304 N. Main Ave., Baldwin Park.

Jan. 4-6—National Turkey Federation; Conrad Hilton Hotel, Chicago, Ill.; sec., M. C. Small, P.O. Box 69, Mt. Morris, Ill.

Jan. 5—California Egg Month Kick-off Luncheon; Sheraton-Palace Hotel, San Francisco; sec., California Egg Council, Willard Smith, 3304 N. Main Ave., Baldwin Park

Jan. 9-10—Kansas Formula Feed Conference; Umberger Hall, Kansas Prof. T. B. Avery, Poultry Husbandry Dept., W. Waters Hall.

Jan. 12-13—Michigan Feed & Grain Dealers Assn.; Michigan State University, Kellogg Center; sec., Nevel Pearson, P.O. Box 472, East Lansing.

Jan. 13-14—Florida State Poultry Producers Assn.; Cherry Plaza Hotel, Orlando, Fla.; chm., Wilfred D. Hedges, 227 Blossom Lane, Winter Park, Fla.

Jan. 15-17—Indiana Grain & Feed Dealers Assn.; Claypool Hotel, Indianapolis; sec., Fred K. Sale, 600 Board of Trade Bldg., Indianapolis 4.

Jan. 16-17—Northwest Retail Feed Assn.; Hotel Pick-Nicollet, Minneapolis; sec., W. D. Flemming, 112 Grain Exchange Bldg., Minneapolis, Minn.

Jan. 22-25—Farmers Grain Dealers Assn.; Civic Memorial Auditorium, Fargo, N.D.; sec., Lloyd C. Hanson, 513 Black Bldg., Fargo.

Jan. 23-25—Southeastern Poultry & Egg Assn.; Municipal Auditorium, Atlanta, Ga.; sec., Harold E. Ford, 235 E. Ponce de Leon Ave., Decatur, Ga.; for reservations: Atlanta Convention Bureau, Rhodes-Haverty Bldg., Atlanta.

Jan. 25—Louisiana Livestock Producers Day; Law Bldg., Louisiana State University, Baton Rouge; chm., Dr. G. L. Robertson, Animal Industry Dept.

Jan. 27 — Missouri Turkey Day; University of Missouri, Columbia; E. M. Funk, sec., Missouri Poultry Improvement Assn., Poultry Bldg., Box 568, Columbia.

Jan. 31-Feb. 1—Illinois Agricultural Industries Forum; University of Illinois, Urbana; Department of Agricultural Economics, 305 Mumford Hall.

Jan. 31-Feb. 1 — Hoosier Turkey Trot; Purdue Memorial Union, Purdue University, Lafayette, Ind.; John N. Howell, Turkey Department, Indiana State Poultry Assn., Poultry Bldg., Purdue University.

Feb. 1-2—Illinois Nutrition Conference; University of Illinois, Urbana; chm., E. E. Hatfield, Department of Animal Science.

Feb. 1-2—New Hampshire Poultry Health Conference; Memorial Union Bldg., Durham; sponsored by Department of Poultry Science, University of New Hampshire; Prof. W. C. Skoglund, Poultry Science Dept.

Feb. 2—Beef Cattle Study Day; University of Arkansas Agricultural Experiment Station, Fayetteville.

Feb. 2-3—Oregon Animal Nutrition Conference; Withycomb Hall, Oregon State College, Corvallis.

Feb. 3-4—Minnesota Turkey Growers Assn.; Leamington Hotel, Minneapolis; sec., Roy Munson, 2200 University Ave., St. Paul, Minn.

Feb. 6-7—Montana Nutrition Conference; Montana State College, Bozeman; chm., Dr. O. O. Thomas, Animal Industry and Range Management Dept.

Feb. 7-10 — American Dehydraters Assn.; Jung Hotel, New Orleans, La.; executive vice president, Joseph Chrisman, 430 Board of Trade Bldg., Kansas City 5, Mo.

Feb. 8-9—Pacific Northwest Feed Mill Production School; Hotel Leopold, Bellingham, Wash.; sponsored by Washington State Feed Assn.; mgr., John G. Wilson, 814 Second Ave. Bldg., Seattle 4.

Feb. 10 — Washington State Feed Assn., annual convention; Hotel Leopold, Bellingham, Wash.; mgr., John G. Wilson, 814 Second Ave. Bldg., Seattle 4.

Feb. 10-11—Poultry Fact Finding Conference; sponsored by Institute of American Poultry Industries; pres., Harold M. Williams, 59 E. Madison, Chicago 2.

Feb. 13-15—Farmers Elevator Association of Minnesota; Pick-Nicollet Hotel, Minneapolis; sec., Lloyd A. Nelson, 512 Grain Exch. Bldg., Minneapolis 15.

Feb. 15—Turkey Short Course; University of Georgia, Athens; Dewey McNiece, Extension Poultry Dept.

Feb. 19-21—Midwest Feed Manufacturers Assn.; Hotel Muehlebach, Kansas City, Mo.; executive vice president, Lloyd S. Larson, 20 W. 9th St. Bldg., Kansas City 5, Mo.

CALENDAR FOR 1960-61

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Feb. 19-21—Ohio Grain & Feed Dealers Assn.; Neil House, Columbus; sec., George G. Greenleaf, 5625 N. High St., P.O. Box 121, Worthington.

Feb. 19-21—Colorado Grain, Milling & Feed Dealers Assn.; Hilton Hotel, Denver; sec., R. L. Wier, 519 Boston Bldg., Denver 2.

Feb. 22—South Dakota Beef Research Day; South Dakota State College, Brookings; Dr. R. C. Wahlstrom, Animal Husbandry Dept.

Feb. 22—Kentucky Turkey Assn.; University of Kentucky, Lexington; J. E. Humphrey, poultry extension specialist.

Feb. 22—Broiler Housing Symposium; University of Georgia, Athens; Dewey McNiece, Extension Poultry Dept.

Feb. 28-March 1—Virginia Feed and Nutrition Conference; Hotel Roanoke, Roanoke; sec., J. Paul Williams, Virginia State Feed Assn., 615 E. Franklin St., Richmond.

March 8—Distillers Feed Conference; Sheraton Gibson Hotel, Cincinnati, Ohio; L. E. Carpenter, Executive Director, Distillers Feed Research Council, 1232 Enquirer Bldg., Cincinnati 2.

March 8-9—Nebraska Grain & Feed Dealers Assn.; Sheraton-Fontenelle Hotel, Omaha; sec., Howard W. Elm, Trust Bldg., Lincoln, Neb.

March 10-11—Oklahoma Feed Industry Conference and Workshop; Oklahoma State University, Stillwater; chm., Dr. Rollin Thayer, Poultry Science Dept.

March 15—Commercial Egg Production Short Course; University of Georgia, Athens; Dewey McNiece, Extension Poultry Dept.

March 16-17—Oregon Feed & Seed Dealers Assn.; Sheraton-Portland Hotel, Portland; mgr., Russ Hays, 702 Lewis Bldg., Portland 4.

March 16-17—Maryland Nutrition Conference; Shoreham Hotel, Washington, D.C.; chm., Dr. R. D. Creek, Poultry Husbandry Dept., University of Maryland, College Park.

March 20-24—Grain & Feed Dealers National Assn.; Washington D.C.; sec., Herbert L. Sharp, 400 Folger Bldg., Washington 5, D.C.

April 3-4—National Institute of Animal Agriculture; Purdue University, Lafayette, Ind.; sec., Karl D. Butler, P.O. Box 521, First National Bank Bldg., Ithaca, N.Y.

April 9-13—American Association of Cereal Chemists; Baker Hotel, Dallas, Texas; 1955 University Ave., St. Paul 4, Minn.

April 10-12—Poultry & Egg National Board; Sheraton Towers Hotel, Chicago, Ill.; mgr., Lloyd H. Geil, 8 S. Michigan Ave., Chicago 3.

April 13-15—Pacific Dairy & Poultry Assn. Exposition and Convention; Riviera Hotel, Las Vegas, Nev.; sec., Carl E. Nall, 1304 7th St., Los Angeles 21, Cal.

April 17-18—Seventh Regional Area Convention, National Renderers Assn.; St. Paul Hotel, St. Paul, Minn.; sec., Harold Weiss, Gulf Soap Corp., Arabi, Louisiana.

April 20-22—California Hay, Grain & Feed Dealers Assn.; Jack Tar Hotel, San Francisco; sec., Leo L. Johnson, Blue Anchor Bldg., 1400 10th St., Sacramento 14.

April 22—Alabama Poultry Industry Promotion Dinner, Dinkler-Tutwiler Hotel, Birmingham, Ala.; sponsored by Alabama Poultry Industry Assn.; sec., W. L. Walsh, Box 567, Montgomery.

April 24-26—Animal Health Institute; Mayflower Hotel, Washington, D.C.; sec., D. L. Bruner, 512 Shops Bldg., Des Moines, Iowa.

April 27-29—Kansas Grain & Feed Dealers Assn.; Broadview Hotel, Wichita; sec., Orris E. Case, 609 Wiley Bldg., Hutchinson.

May 5—Broiler Short Course and Chicken-of-Tomorrow Day; University of Georgia, Athens; Dewey McNiece, Extension Poultry Dept.

May 7-10—American Feed Manufacturers Assn. Convention and National Feed Show; Conrad Hilton Hotel, Chicago, Ill.; sec., W. T. Diamond, 53 West Jackson Blvd., Chicago 4.

May 7-10—Association of American Feed Control Officials; Hamilton Hotel, Chicago; sec., Bruce Poundstone, Head, Feed and Fertilizer Control Dept., University of Kentucky, Lexington.

May 14-15—Missouri Grain & Feed Assn.; Hotel Coronado, St. Louis, Mo.; sec., D. A. Meinershagen, Higginsville, Mo.

June 8-11—Canadian Feed Manufacturers Assn.; National Convention; Manoir Richelieu, Murray Bay, Quebec; national secretary, W. N. Hendrick, 2901 Bloor St. W., Toronto 18, Ont.; for registrations, T. G. Sevigny, Room 100, 355 McGill St., Montreal 1, Quebec.

June 20-21—Alabama Poultry Industry Assn.; Whitley Hotel, Montgomery, Ala.; sec., W. L. Walsh, Box 567, Montgomery.

July 14-18—Georgia Feed Assn.; Grand Bahama Club, Grand Bahama Island; sec., W. E. Merritt, Suite 1-A, 361 E. Paces Ferry Rd. N.E., Atlanta 5.

July 18-20—American Poultry Congress & Exposition; Municipal Auditorium, Minneapolis; Don M. Turnbull, sec., American Poultry & Hatchery Federation, 521 E. 63rd St., Kansas city 10, Mo.

July 24-28—Southeastern Egg Quality and Grading School; Auburn University, Auburn, Ala.; sec., Southeastern Poultry & Egg Assn., Harold E. Ford, 235 E. Ponce de Leon Ave., Decatur, Ga.

Aug. 24-26—North Carolina Feed Manufacturers Assn.; Virginia Beach, N.C.; sec., McNair Evans, Box 44, Mocksville.

Aug. 24-27—Georgia Poultry Institute; Rock Eagle 4-H Club Center, Eatonton, Ga.; Dewey McNiece, Extension Poultry Dept., University of Georgia, Athens.

Sept. 19-21—Marketing Seminar for Feed Manufacturers; Morrison Hotel, Chicago; Sales Executives Council, American Feed Manufacturers Assn., W. E. Glennon, president, 53 W. Jackson Blvd., Chicago.

Sept. 27-29—National Feed Ingredients Assn.; Lake Lawn Lodge, Delavan, Wis.; sec., I. Levin, 517½ E. Locust St., Des Moines 9, Iowa.

Sept. 27-29—Pennsylvania Millers & Feed Dealers Assn.; Hotel Hershey, Hershey, Pa.; sec., D. W. Parke, P.O. Box 329, Ephrata, Pa.

TABLE 1. U.S. Pig Crop

Pig crop SPRING	Average 1949-58	1959	1960	1961	1960 % of 1959 %	1961 % of 1960 %
		1,000 head				
Sows farrowing	8,099	7,996	6,765	*7,063	85	104
Pigs saved	54,550	56,620	47,104	†49,500	83	105
FALL						
Sows farrowing	5,379	6,128	5,918	....	97	..
Pigs saved	36,533	42,775	41,550	....	97	..
SPRING AND FALL						
Total pigs saved	91,083	99,395	88,654	....	89	..
PIGS PER LITTER		Number				
Spring	6.76	7.08	6.96	†7.00	..	..
Fall	6.79	6.98	7.02	....	..	..

*As indicated by breeding intentions reports.
†Average number of pigs per litter with allowance for trend used to compute indicated number of spring pigs. Number rounded to nearest 500,000 head.

PIG CROP

(Continued from page 1)

1959, the U.S. Department of Agriculture notes in its latest pig crop report.

The 1960 spring crop was off 17%, while the fall crop was down only 3%. In relation to a year earlier, farrowings picked up in the latter part of the fall (June-November) period as farmers reacted to reduced numbers and higher hog prices.

However, the predicted expansion in swine operations will not be as great in coming months as had been forecast. For example, the American Feed Manufacturers Assn.'s Feed Survey Committee had forecast a 10% increase in the 1961 spring pig crop.

Now, USDA's survey of farmers' intentions indicates 7.1 million sows to farrow in the spring of 1961—only 4% above a year earlier. If these intentions materialize and if the number of pigs per litter is as expected, the spring pig crop would be 49.5 million head—or 5% above the 1960 spring crop.

The rate of expansion in the Corn Belt would be somewhat ahead of that for the nation as a whole, the report indicates.

The report also shows that the number of all hogs and pigs on farms Dec. 1 in 10 Corn Belt states was 3% less than a year earlier.

Here are some of the highlights of USDA's December pig crop report:

FALL CROP DOWN 3% — The number of pigs saved during the fall of 1960 (June-November) is estimated at 41,500,000 head. This is 3% less than the 1959 fall crop but 14% above the 1948-58 fall average. Numbers were down from last year in all regions, ranging from a decline of 1% in the west north central states to 10% in the south Atlantic states. The north Atlantic states were down 9%, east north central, 2%; south central, 8%, and western, 2%.

The number of sows farrowing in the fall of 1960 is estimated at 5,918,000 head, 3% less than farrowed in the fall of 1959, but 10% above average. Fall farrowings were 1% more than indicated by farmers' reports on breeding intentions last June.

Pigs saved per litter averaged 7.02 in the fall of 1960, compared to 6.98 in the fall of 1959.

Compared with a year earlier, the 1960 fall farrowings were relatively larger in September, October and November and relatively smaller in June, July and August.

1960 SPRING PIG CROP DOWN 17%—The 1960 spring pig crop is estimated at 47,104,000 pigs, 17% below 1959.

ANNUAL PIG CROP 11% SMALLER—The 1960 spring and fall pig crops combined totaled 88,654,000 head, 11% less than the 99,395,000 head in 1959.

SPRING INTENTIONS UP 4%— Farmers' reports on breeding intentions for the spring of 1961 indicate 7,063,000 sows to farrow (December, 1960, through May, 1961). This would be 4% more than a year earlier but 12% less than in the spring of 1959. The north central and western states indicate increases, while the north and south Atlantic and south central regions plan decreases in spring farrowings. By regions, changes from 1960 are as follows: Increases, west north central, 9%; east north central, 2%, and the west, 6%; decreases, north Atlantic, 6%; south Atlantic, 3%, and south central, 2%.

If the intentions for spring farrowings materialize and the number of pigs saved per litter equals the average with an allowance for trend, the 1961 spring pig crop would be 5% larger than a year earlier.

Reflecting intended increases in the 10 Corn Belt states, the number of sows expected to farrow during December, January and February is estimated at 1,830,000 head, 8% more than the 1,691,000 head farrowed during this period a year earlier. In September farmers in these 10 states indicated they would farrow 4% more sows during those months.

SELECTED CORN BELT STATES —The number of sows intended to farrow in the 10 states is 6% more than farrowed a year earlier. Included in these 10 states are: Ohio, Indiana, Illinois, Wisconsin, Minnesota, Iowa, Missouri, South Dakota, Nebraska and Kansas. These states accounted for about three fourths of the U.S. 1960 spring pig crop.

The Dec. 1 survey indicated more farrowings in both the winter (December - February) and spring (March-May) quarters. The number of sows expected to farrow during December, January and February is estimated at 1,830,000 head, 8% more than the 1,691,000 head farrowed during this period a year earlier. In September farmers in these 10 states indicated that they would farrow about 4% more sows during the winter months (December, January and February). The 3,596,000 head intended to farrow in March, April and May is 5% more than the 3,411,000 sows farrowed in these months in 1960.

In the 10 states the number of sows farrowed in the fall of 1960 total 4,393,000 head, 1% less than in the fall of 1959. The number indicated by farmers' reports Sept. 1 was 3% less than 1959. Sows farrowed during June, July and August totaled 2,271,000 head or 7% less than in 1959. The number farrowed during September, October and November totaled 2,122,000 head, 5% more than the 2,014,000 head farrowed for the same quarter in 1959.

ALL HOGS IN 10 STATES DOWN —The number of all hogs and pigs on farms Dec. 1 in the 10 Corn Belt states for which data are available totaled 46,903,000 head, 3% less than the 48,394,000 on hand a year earlier. Wisconsin showed the greatest decrease. Ohio, Indiana, Minnesota and Kansas each showed decreases of 1%. Hogs six months old or older were down 7% from a year earlier. The number of hogs under six months of age, at 30,137,000 head, was only slightly below a year earlier. Pigs less than three months of age were up 7% from a year earlier and reflected the increase in farrowings during the last quarter of the 1960 fall pig crop.

REVISIONS IN ESTIMATES — The estimates of sows farrowed and pigs saved shown in this report have been revised from those previously published. These estimates were revised on the basis of data obtained from the Census of Agriculture taken in the fall of 1959 and other data which have become available since the original estimates were made.

STABILITY

(Continued from page 1)

reporting by USDA. That is not so.

It is true that on balance the report as corrected from previous years does reveal a 5% increase in the 1961 spring pig crop. This is in part just a figure—a statistic. This figure fails to reflect the correction of previous reports which reduced the total production—a conclusion which waters down the now indicated increase in the 1961 spring crop.

But one should not be entranced by data—data do not always profit or feed the little folks at home.

Later Expansion

The core of this report is contained in the material of the 1960 fall farrowings by months, which reveals the potential rate of marketing swine for the coming six months. (See Table 1.) That data clearly shows that the slaughter of swine will shrink markedly during the next six months. It probably will mean firmer prices for pork products and in turn stimulate swine producers to embark on further and later expansion of their herds.

But in the meantime the present situation as reported by USDA for the pig crop certainly diminishes the fervor for speculation in soybeans and leaves the corn market on little less than dead center.

However, there is a strong feeling at USDA that there will be a most urgent demand for soybeans for export based on an alleged or rumored inability of Manchuria to supply beans to Europe.

This is a thin lead to lean on for the speculator in the bean market. For the feed manufacturer the indicated rate of slaughter of pigs is a solid index for the next six months.

There just is no indicated broad advance in the demand for soybean meal or corn.

TABLE 1. Fall Farrowings, by Months, U.S.

Year	June	July	August	September	October	November	Total
	Sows farrowing in the fall (1,000 head)						
1949-58 average	744	703	1,258	1,523	796	355	5,379
1958	829	912	1,400	1,504	820	422	5,887
1959	954	978	1,414	1,559	808	415	6,128
1960	887	884	1,306	1,522	873	446	5,918
	Percentage distribution of fall farrowings (per cent)						
Year	June	July	August	September	October	November	Total
1949-58 average	13.8	13.1	23.4	28.3	14.8	6.6	100
1958	14.1	15.5	23.8	25.5	13.9	7.2	100
1959	15.5	16.0	23.1	25.4	13.2	6.8	100
1960	15.0	14.9	22.1	25.7	14.8	7.5	100

Iowa Grain Storage

COUNCIL BLUFFS, IOWA—Construction of ten concrete grain storage tanks and a concrete headhouse has been started here by Omaha Elevator Co., a Peavey & Co. affiliate, announced R. B. McWhite, vice president and general manager.

The storage tanks will have a 500,000 bu. capacity. This will be in addition to the 120,000 bu. facilities already in place at the company's docksite on the Missouri River.

NEW IOWA MILL

ELKADER, IOWA — A new feed mixing plant is now under construction in Elkader for the Wilker Feed & Supply Store. When completed, the new mill will include a scale, unloading pit, modern grinding, mixing and elevating equipment and large storage space.

TOP OF THE HOPPER

(Continued from page 2)

"We shall go through a short period (four to six years) of intense agrivation; a period with the majority of farmers, traders and educationalists resisting vertical integration," he says. "We shall see a lot of the 'you can't do that there 'ere' attitude. However, this attitude will have little effect on the tide of change, a change generated by many interests and forces combining to drive along relentlessly the vertical integration of our agribusiness.

"This American concept of agribusiness and vertical integration is the answer to the farming communes of Russia, China and East Europe. The eastern nations have decided they cannot afford the cost of a peasant structure in their farming. I am certain the same applies to western countries. This businesslike approach to agriculture is going to cause eruptions in every European country and will be erupting into the Middle East and many other parts of the world. It will become one of the major tools in the Cold War, the battle for the minds of the under-developed countries through their agribusinesses."

FOR THE FIRST TIME in history, the total value of sales of beef cattle in Alabama last year went over the $100 million mark. In the next five years, specialists predict the income from beef cattle in Alabama will reach $150 million, according to Larry Alley, Pay Way Feed Mills, Inc., in a recent talk. There are now a total of 738,000 head of brood cows in Alabama, almost equal to the herd in Colorado and larger than totals in such traditional cattle states as Wyoming, New Mexico and Arizona, he noted.

AN ALERT ATTITUDE toward student recruitment is demonstrated by Texas A&M officials. Registrants at the recent Texas Nutrition Conference received a follow-up letter from G. M. Watkins, director of agricultural instruction, thanking them for participating and pointing out the scope of such conferences and other educational programs of the school of agriculture. Enclosed with the letter was a pamphlet, "A Career for You in Agricultural Sciences," which describes courses of study available to prospective students.

"One of the tasks we take very seriously in this office is furnishing young men information about the agricultural industry as a whole and the career opportunities that exist in it," Mr. Watkins writes. "Please drop me a card with the name, address and agricultural interest (if known) of any young man you think we ought to mail such pamphlets to. We are particularly anxious to have young people know that agriculture offers excellent career opportunities to those who are interested in becoming professional scientists."

The FEED MARKET

PRICE QUOTATIONS, MARKET TRENDS
OF PRINCIPAL INGREDIENTS

A AND D FEEDING OIL

Boston: Demand and supply steady; 400 D, 3,000 A 19¼¢ lb.; 300 D, 3,000 A 19¢; 300 D, 2,250 A 17½¢; 300 D, 1,500 A 16¢; 300 D, 750 A 14¢; 75 D, 750 A 13½¢.

Minneapolis: Demand fair; supply ample; 10,000 A 31¢ lb.; 300 D, 2,250 A 17½¢ lb.; 300 D, 1,500 A 16¢ lb.; 300 D, 750 A 15½¢ lb.

Chicago: Demand fair; trend steady; supply ample; straight A feeding oil, with 10,000 units vitamin A per gram, 7@7¼¢ a million units of vitamin A, l.c.l., packed in 55 gal. drums, f.o.b. Chicago, drums included.

Denver: Demand slow; trend steady; supply ample; 21¢ lb.

ALFALFA MEAL

Memphis: Demand and trend steady; supply ample; dehydrated, 17% protein, guaranteed 100,000 units vitamin A $52; reground pellets $54.

Ft. Worth: Demand fair; supply sufficient; sacked: dehydrated 17%, 100,000 A $57.10, truck or rail; suncured: 13% ¼-in. grind No. 1 $48, truck; 15% fine ground, dry $50, with 2% fat added $52, rail or truck.

Cincinnati: Demand fair; trend steady; supply adequate; 17% dehydrated, 100,000 vitamin A $55@56.

Boston: Demand fair; supply adequate; dehydrated, 17%, sacked $63.50; suncured, 13%, sacked $46.60.

Los Angeles: Demand and trend steady; supply adequate; dehydrated meal, 17% protein, 100,000 A $51@52, nominal; dehydrated pellet meal, 17% protein, 100,000 A $53@54, nominal; suncured meal, 15% protein $45@46; suncured crumbles, 15% protein $47@48.

Omaha: Demand slow; trend steady; supply ample; 17% dehydrated, 100,000 A units, bulk pellets $45; sacked meal $50, Omaha basis.

Philadelphia: Demand slow; supply fair; 17% dehydrated $63.50.

Minneapolis: Sideways movement in this ingredient; 17% dehydrated, 100,000 A units, reground pellets steady at $51, delivered Minneapolis; oiled reground pellets $53.

Kansas City: Demand fair; trend steady; supply ample; 17% dehydrated alfalfa, 100,000 A on arrival, pellets $46@48, reground pellets $47@49; 18% dehydrated alfalfa, 125,000 A on arrival, pellets $48@51, reground pellets $49@52; 20% dehydrated alfalfa, 150,000 A on arrival, pellets $50@54, reground pellets $51@53; suncured alfalfa, demand improved, supply adequate, 13% pellets $35@37, No. 1 ¼-in. $40, sacked.

Chicago: Demand and supply fair; trend higher; dehydrated, 17% protein, 100,000 units vitamin A $49.50.

Buffalo: Demand fair to poor; trend steady; supply adequate; $63.60, sacked, Boston.

Denver: Demand and trend steady; supply ample; $47.

Seattle: Demand fair; trend firm; supply good; 15% protein suncured $51, 150,000 A unit dehydrated $72, both delivered truck loads, sacked.

St. Louis: Demand slow; trend firm; supply limited; suncured, 13% fine, sacked $48; dehydrated, 17%, 100,000 A pellets, demand slow, trend steady, supply ample, bulk $48.50.

ANIMAL FAT (STABILIZED)

Ft. Worth: Demand good; supply sufficient; prime tallow, tank cars 5½¢ lb.; drums 7¢ lb., delivered, north Texas packing plants, with returnable drums.

San Francisco: Demand fair; supply ample; bleachable fancy 6¼¢ lb.; yellow grease 4¾¢ lb.

Boston: Demand and supply steady; tallow 6¢ lb., yellow grease 5¢ lb.

Ogden: Supply ample; $5.70 cwt.

Louisville: Demand fair; trend steady; supply good; white tallow 6¢ lb., bleachable white 5¾¢ lb., yellow grease 5½¢ lb., all in tank car lots.

Kansas City: Demand slow; trend easy; supply ample; stabilized prime tallow 5¼¢ lb.

Chicago: Demand good; trend steady; supply light; tank truck or car lot, bleachable fancy tallow $5.75 cwt., yellow grease $5 cwt.

St. Paul: Demand good; supply ample but not in surplus; bleachable fancy unchanged at 5¾¢ lb., f.o.b. producer's plant.

Salisbury, Md.: Demand excellent; supply short; 5¾¢ lb., f.o.b.

BARLEY FEED

Ogden: Supply good; rolled $45@46, whole barley $40@41.

Boston: Demand slow; supply ample; $44, sacked.

Los Angeles: Demand slow; trend unchanged; supply adequate; standard rolled $3 cwt., standard ground $3 cwt., both sacked.

San Francisco: Demand fair; supply ample; rolled $58, ground $57.

Philadelphia: Demand slow; supply fair; $42.

Chicago: Demand and supply fair; trend firm; $34, sacked.

Baltimore: Demand fair; trend steady; supply ample; $44.50, sacked.

Denver: Demand fair; trend steady; supply ample; $2.10 bulk, $2.30 sacked.

Seattle: Demand and supply good; trend firm; $45, truck lots.

BENTONITE (SODIUM)

Cincinnati: Demand steady; supply adequate; f.o.b. Cincinnati, minimum 30 ton carlots: 80 granular $31.50, less than car lots $40; 200 mesh fine $31.50, less than car lots $40.

NOTE: Quotations on feed ingredients shown in these and adjoining columns are wholesale prices, per ton, bulk, for prompt delivery, unless otherwise noted. They are the latest quotations available from Feedstuffs correspondents and are not necessarily those in effect on date of publication. The prices represent fair average trading values and do not necessarily represent extreme low or high levels at which individual sales might have occurred. A descriptive summary of supply and demand factors prevalent in the feed market appears on page 2.

Chicago: Demand fair; supply ample; trend steady; f.o.b. Wyoming and South Dakota shipping points: 200 mesh $14 and net $13.75; fine granular (30 to 100 mesh) $14.25 and net $14; granular, 30 mesh $16.50 and net $16.25.

Denver: Demand fair; trend steady; supply good; $24.50.

BLOOD FLOUR

Louisville: Demand and supply light; trend steady; $80@85, sacked.

BLOOD MEAL

Ogden: Supply ample; $82.50.

Omaha: Demand good; trend strong; supply short; 80% $90, sacked, Omaha.

Los Angeles: Demand slow; trend steady; supply moderate; $5.50 a unit of ammonia, sacked.

San Francisco: Demand and supply fair; $5.50 a unit of ammonia, sacked.

Louisville: Demand dull; trend steady; supply good; $80@85, sacked.

Chicago: Demand better; trend higher; supply fair; 80% protein $115, sacked.

BONE MEAL (STEAMED)

San Francisco: Demand good; supply ample; $75, sacked.

Ft. Worth: Demand good; supply sufficient; $100, sacked, f.o.b. Ft. Worth, local manufacture.

Los Angeles: Demand fair; trend steady; supply ample; imported $80.75, 20 ton lots, sacked.

Cincinnati: Demand good; supply fair; trend stronger; $95, sacked, Cincinnati.

Boston: Demand and supply steady; $100.

Louisville: Demand very dull; supply light; trend steady; $90@95, sacked.

Chicago: Demand improved; trend upward; supply moderate; $92.50, sacked.

Buffalo: Demand fair; trend steady; supply light; $95, sacked.

Seattle: Demand fair; trend steady; supply good; $92, f.o.b. car Seattle, sacked.

BREWERS DRIED GRAINS

Ft. Worth: Demand moderate; supply scarce; 26% protein $62.90, sacked, December.

Cincinnati: Demand poor; trend higher; supply adequate; $56.

Boston: Demand active; supply scarce; 26% $61.50, January shipment.

Los Angeles: Demand and trend steady; supply adequate; $51.

San Francisco: Demand fair; supply ample; $51, sacked.

Louisville: Demand and supply good; trend strong; $60, sacked, up $1.

Philadelphia: Demand and supply fair; $61.50.

Chicago: Demand good; trend higher; supply light; 26% protein $50.

Buffalo: Demand fair to poor; trend steady; supply poor; $62.50, Boston.

St. Louis: Demand good; trend firm; supply tight; $52.

BREWERS DRIED YEAST

Los Angeles: Demand good; trend unchanged; supply limited; 10¢ lb., 5 ton lots; 11¢ lb., 1 ton lots; 12¢ lb., less than ton lots; all sacked.

Omaha: Demand poor; trend improving; supply plentiful; 10¢ lb.

Cincinnati: Carlots 11¢ lb.; 5 ton lots 11¢ lb.; ton lots 11½¢ lb., all sacked.

Boston: Demand and supply steady; 11¢ lb.

San Francisco: Demand fair; supply good; 10¢ lb., sacked.

Louisville: Demand dull; trend steady; supply good; 10@10½¢ lb., sacked.

Chicago: Demand fair; trend steady; supply ample; 9½@10¢ lb., carlots, sacked; 9¾@12½¢ lb., l.c.l.

Milwaukee: Demand fair; trend steady; supply ample; 10½@12½¢ lb., ton lots, sacked.

St. Louis: Demand fair; trend firm; supply ample; 9½@10¢ lb., carlots, sacked; 10½¢ lb., ton lots; 11½¢ lb., less than ton lots.

Pittsburgh: Carlots 10¢ lb.; 5 ton lots 11¢ lb.; ton lots 11½¢ lb., all sacked.

New Orleans: Carlots 10¢ lb.; 5 ton lots 11¢ lb.; ton lots 11½¢ lb., all sacked.

New York: Carlots 9½¢ lb.; 10 ton lots 10¢ lb.; 5 ton lots 10½¢ lb.; ton lots 11¢ lb., all sacked, f.o.b. New Jersey.

Buffalo: Demand fair; trend steady; supply ample; $9 cwt.

Denver: Demand fair; trend steady; supply ample; 9¢ lb., f.o.b. warehouse.

Seattle: Demand slow; trend steady; supply ample; $12 cwt., sacked.

BUTTERMILK (CONDENSED)

Louisville: Demand slow; trend steady; supply light; $4.25 cwt., in paper drums.

Boston: Demand and supply steady; 4¼¢ lb.

Los Angeles: Demand slow; trend unchanged; supply adequate; 5½¢ lb., 100 lb. lots; 4½¢ lb., 500 lb. lots; both in barrels.

San Francisco: Demand fair; supply good; $5 cwt., drums.

Ogden: Supply ample; $4.40 cwt., drum.

Philadelphia: Demand slow; supply fair; $4.25 cwt.

Chicago: Demand fair; trend easier; supply ample; 500 lb. barrels $3.05@3.25 cwt.

CALCITE CRYSTALS AND FLOUR
(All prices net, sacked, including freight)

New York: Crystals $16.28, flour $10.28.

Buffalo: Crystals $17.11, flour $11.11.

Toledo: Crystals $18.96, flour $12.96.

Boston: Crystals $17.63, flour $11.63.

Lime Crest, N.J.: Crystals $11.50, flour $5.50.

CALCIUM CARBONATE

Cincinnati: Demand fair; trend steady; supply adequate; $7@7.50 cwt.

Los Angeles: Demand fair; trend steady; supply adequate; flour $10.15, 20 ton cars; meal $11.50, 20 ton cars; both sacked.

Chicago: Demand fair; trend steady; supply ample; fine grind, plain, 100 lb. bags $9.54; bulk, in hopper cars $7.54; bulk, in boxcars $8.04; granular grind $1 premium.

Minneapolis: Fine grind, 50 lb. bags $12.75; 100 lb. bags $12; bulk, boxcar $10.50; bulk, hopper $10; coarse grind $1 premium, delivered Minneapolis.

Seattle: Demand and trend steady; supply good; $14, ex-warehouse, sacked.

CHARCOAL

Boston: Demand slow; supply light; granular No. 6 $110.

Los Angeles: Demand slow; trend unchanged; supply ample; hardwood poultry: $156, less than ton lots; $144.40, ton lots; both sacked.

San Francisco: Demand steady; supply ample; $141, sacked.

Chicago: Demand fair; trend firm; supply fair; 50 lb. multiwalls $110.

COCONUT OIL MEAL

Los Angeles: Demand steady; trend unchanged; supply ample; copra cake $63, December-January.

San Francisco: Demand fair; supply ample; solvent $52, expeller $69.

Seattle: Demand fair; trend steady; supply ample; solvent type $68, f.o.b. car Seattle, sacked.

COD LIVER OIL (FORTIFIED)

Boston: Demand and supply steady; 600 D, 2,250 A 18½¢ lb.; 600 D, 1,500 A 17¢; 300 D, 3,000 A 20¢; 300 D, 2,250 A 18¢; 300 D, 1,500 A 16½¢.

CONDENSED FISH SOLUBLES

Boston: Demand quiet; supply ample; $37.50@40.

Los Angeles: Demand and trend steady; supply adequate; 2¢ lb.

Denver: Demand better; trend steady; supply ample; 3¢ lb., West Coast.

CORN GLUTEN FEED AND MEAL
(All quotations for all cities are bulk basis, sacked basis $5 more)

Minneapolis: Feed $49.60, meal $64.60.
Atlanta: Feed $53, meal $68.
Birmingham: Feed $51.60, meal $66.60.
Boston: Feed $54.50, meal $69.50.
Chicago: Feed $43, meal $58.
Cleveland: Feed $50.90, meal $65.90.
Denver: Feed $53.20, meal $68.20.
Ft. Worth: Feed $51.70, meal $66.70.
Indianapolis: Feed $48.20, meal $63.20.
Kansas City: Feed $43, meal $58.
Louisville: Feed $50.60, meal $64.60.
New Orleans: Feed $52.90, meal $67.90.
New York: Feed $54.10, meal $69.10.
Norfolk: Feed $53.50, meal $68.50.
Philadelphia: Feed $53.70, meal $68.70.
St. Louis: Feed $43, meal $58.

CORN OIL MEAL

Cincinnati: Demand fair; trend higher; supply adequate; $49.

Louisville: Demand nil; trend steady; supply very light; $55.55, sacked.

Seattle: Demand good; trend strong; supply ample; $52 car.

COTTONSEED OIL MEAL

Ft. Worth: Demand excellent for hulls, good for old process, slow for solvent; supply sufficient on cottonseed oil meal, light on hulls: 41% old process $61, f.o.b. mills Ft. Worth; carlots, solvent, 2% fat added $56.50, December, delivered Ft. Worth; pellets $2 additional, hulls $21.

San Francisco: Demand fair; supply ample; 41% $57, 44% $58.

Louisville: Demand fair; trend easy; supply normal; old process $60.60, new process $58.60, both sacked.

Ogden: Supply ample; 41% $61@63.

Cincinnati: Demand poor; trend steady; supply adequate; $56.60 in 40 ton carloads.

Boston: Demand fair; supply adequate; 41% $69, sacked.

Wichita: Demand fair; supply ample; 41% old process $67, sacked.

Los Angeles: Demand slow; trend steady; supply ample; $54.

Omaha: Demand slow; trend strong; supply ample; 41% solvent $58.70, delivered Omaha.

Memphis: Demand fair; trend steady; supply ample; prime 41% protein old process $52; new process, 41% solvent $49.50.

Philadelphia: Demand slow; supply fair; $65.

Kansas City: Demand slow; trend steady; supply ample; 41% old process $52@52.50, solvent process $49.50@50, Memphis.

Chicago: Demand fair; trend steady; supply ample; Memphis basis, hydraulic $53.

Buffalo: Demand poor; trend steady to lower; supply adequate; $72.50, sacked, Boston.

Denver: Demand fair; trend steady; supply ample; $58.

St. Louis: Demand fair; trend steady; supply ample; solvent $54.

Seattle: Demand fair; trend steady; supply ample; $66, f.o.b. car Seattle.

CURACAO PHOSPHATE

New York: Minimum 14% phosphorus $46.50 sacked, $43.50 bulk, f.o.b. New Orleans, Jacksonville and Philadelphia.

D ACTIVATED ANIMAL STEROL (POWDERED)

Cincinnati: Demand fair; trend steady; supply ample; 1,500 ICU 11@12¢ lb.; 3,000 ICU 10¢ lb., warehouse.

Kansas City: Demand fair; trend steady; supply ample; 1,500 ICU 9¾¢ lb.; 3,000 ICU 11¢ lb.

D ACTIVATED PLANT STEROL (POWDERED)

Chicago: Demand fair; supply ample; 4,000,000 U.S.P. units per lb., 15¢ lb. in ton lots, less than ton lots 17¢ lb.; 12,000,000 units per lb., 5 tons to a carload 28¢ lb., ton lots and less 30¢ lb.

DEFLUORINATED PHOSPHATE

Coronet, Fla.: Minimum phosphorus 18%, minimum calcium 31%, maximum calcium 34%, maximum fluorine .18%; guaranteed uniform analysis; carload $61.25, sacked, 100 lb. multiwall bags, bulk $58.25; truck load $62, sacked, in 100 lb. multiwall bags, bulk $59, f.o.b. Coronet, Fla.

Tupelo, Miss.: Minimum phosphorus 14%, minimum calcium 28%, maximum fluorine .14% $52, f.o.b. Tupelo in 100 lb. multiwall bags, $54.07 bulk.

Wales, Tenn.: Minimum phosphorus 18%, minimum calcium 33%, maximum 36%, maximum fluorine .18% $66 (or $3.67 per unit of P), f.o.b. Wales in 100 lb. multiwall bags, $3 less in bulk.

Butte, Mont.: Minimum phosphorus 18%, minimum calcium 32%, maximum calcium 36%, maximum fluorine .18% $81 (or $4.50 per unit of P), f.o.b. Butte, 100 lb. multiwall bags; bulk $78; truck lots of less than 10 tons $10 more, bagged or bulk.

Houston: Minimum phosphorus 19%, minimum calcium 32%, maximum calcium 35%, maximum fluorine .18% $69.35 net ton, f.o.b. Houston, 100 lb. multiwall bags; $66.35 bulk ($3.65 per unit of P).

Cincinnati: 18% phosphorus $74.30 in carloads, $84.30 in ton loads; 14% phosphorus $62.50 in carloads, $72.50 in ton loads, f.o.b. Cincinnati.

DICALCIUM PHOSPHATE

Trenton, Mich.: 18½% P $33, bulk, boxcar/hopper car; $86, bagged, in carloads or truck loads; $96 bagged, in less than carload lots; 21% P, $94.05, bulk, boxcar/hopper car; $97.65, bagged, in carloads or truck loads; $107.65, bagged, less than carload; all prices f.o.b. Trenton, freight equalized with nearest producing point.

Chicago: Bulk 18.5% phosphorus, carlots or trucks $83; 20,000 lb. or more $86 net ton in 100 lb. papers; less than 20,000 lb. $96, basis Chicago Heights, Ill., or Nashville, Tenn.; 21% phosphorus, carlots or trucks, bulk $94.65; 20,000 lb. or more, per net ton in 100 lb. papers, $97.65; less than 20,000 lb., $107.65, basis Chicago Heights, Ill., or Nashville, Tenn.

Bonnie, Fla.: Minimum phosphorus 18½%, granular, $81 (or $4.38 unit of P), freight equalized from nearest producing point, carload basis; bulk carloads $3 less; in truck loads of less than 10 tons, $10 more. Western slope prices, for delivery at established railroad stations and by truck at regular feed mixing plants: California, Arizona, Nevada and Utah, $99.90; Washington, Oregon, Montana and Idaho, $107.15; bulk carloads $3 less; truck loads less than 10 tons, $10 more.

Columbia, Tenn.: Minimum phosphorus 18.5%, minimum calcium 24% $86, f.o.b. Columbia, in 100 lb. multiwall bags; freight equalized with nearest producing point, carload basis; bulk $3 ton less.

Texas City, Texas: Minimum phosphorus 18.5%, minimum calcium 20%, maximum calcium 23%, maximum fluorine .12%; carload and truck load $75.50, sacked in 100 lb. multiwall bags, bulk $72.50, f.o.b. Texas City.

Denver: Demand good; trend steady; supply ample; $88.50, delivered, carload, Denver.

Cincinnati: 18½% phosphorus $88.80, bagged, in carloads; $96.70, bagged, in ton lots, f.o.b. Cincinnati; $81, f.o.b. producing points.

DISTILLERS DRIED GRAINS

Boston: Demand active; supply very tight; nominal: dark $69@71, light $66@68.

Cincinnati: Demand fair; trend steady; supply adequate; $58@59.

San Francisco: Demand fair; supply ample; solubles $79, sacked.

Louisville: Demand good; trend steady; supply light; bourbon grains: light $58, dark $59, solubles $73, all sacked.

Philadelphia: Demand fair; supply very light; $68.75, dark.

Buffalo: Demand good; trend higher; supply fair; $68, Boston.

Seattle: Demand fair; trend firm; none available; $69, delivered truck lots, sacked.

DRIED BEET PULP

Ogden: Supply ample; $39@45.

Ft. Worth: Demand slow; supply sufficient; plain $62.50, sacked, 50 lb. bags, January-February-March.

Boston: Demand slow; supply spotty; $58, sacked.

Los Angeles: Demand good; trend steady; supply adequate; $49.90.

San Francisco: Demand good; supply fair; $44.50.

Denver: Demand fair; trend steady; supply ample; $62.50.

Buffalo: Demand and supply fair to poor; trend steady to higher; $58, sacked, Boston.

Seattle: Demand good; trend steady; supply ample; $49, delivered carlots, sacked.

DRIED BUTTERMILK

Ogden: Supply ample; $17.25 cwt.

Boston: Demand light; supply short; 14¢ lb.

Los Angeles: Demand fair; trend steady;

supply ample; 13¾@14¢ lb., sacked.
San Francisco: Demand fair; supply ample; 13¼¢ lb., sacked.
Louisville: Demand slow; trend steady; supply light; 13@13½¢ lb., sacked.
Chicago: Demand slow; trend steady; supply fair; medium acid $11.50@12 cwt., sweet cream $11.50@12 cwt., both sacked.
Buffalo: Demand fair; trend steady; supply limited; $12.25 cwt.

DRIED CITRUS PULP

Boston: Demand fair; supply tight; $47.50, sacked, f.o.b. Florida.
Los Angeles: Orange pulp $43, lemon pulp $41, both nominal.
San Francisco: Demand and supply fair; meal $43, sacked.
Buffalo: Too scarce to quote.

DRIED SKIM MILK

Ogden: Supply normal; $15.15 cwt., sacked.
Cincinnati: Demand fair; trend steady; supply adequate; 12@13¢ lb., sacked.
Boston: Demand good; supply scarce; 13¢ lb.
San Francisco: Demand and supply fair; 14½¢ lb., sacked.
Omaha: Demand and trend strong; supply short; 12¢ lb.
Los Angeles: Demand slow; trend unchanged; supply adequate; 15¢ lb., less than ton lots; 14¾¢ lb., ton lots; both sacked.
Louisville: 12@13¢ lb., sacked.
Philadelphia: Demand slow; supply fair; $13 cwt.
Minneapolis: Market steady; price still $12.25@12.50 cwt.
Chicago: Demand slow; trend easier; supply ample; $11@11.25 cwt., sacked.
Buffalo: Demand fair; trend steady; supply ample; $13.35 cwt.

DRIED WHEY

Cincinnati: Demand fair; trend steady; supply adequate; $5.75 cwt., sacked.
Ft. Worth: Demand fair; supply adequate; carlots, standard $5.25, sacked, delivered Ft. Worth; ton lots $5.50, f.o.b. warehouse Ft. Worth.
Boston: Demand and supply good; 5¼@5½¢ lb.
Los Angeles: Demand fair; trend steady; supply adequate; $5.18 cwt., carloads; $5.35 cwt., l.c.l.; both sacked.
Omaha: Demand and supply good; trend strong; $5.50 cwt.
San Francisco: Demand steady; supply good; $5.25 cwt., sacked.
Louisville: Demand slow; trend steady; supply normal; 6@6¼¢ lb., sacked.
Ogden: Supply ample; $6.90 cwt., sacked.
Philadelphia: Demand slow; supply fair; $6.25 cwt.
Chicago: Demand quiet; trend easier; supply fair; $4.75@4.85 cwt., sacked.
Minneapolis: A bit easier; steady to off 10¢ at $5.40@5.50 cwt.
Kansas City: Demand fair; trend steady; supply adequate; regular or partially delactosed $5.25 cwt., sacked.
Denver: Demand fair; trend steady; supply ample; $5.25, delivered truck.
Seattle: Demand steady; trend easy; supply good; $5.85 cwt., ex-warehouse, l.c.l.

FEATHER MEAL (HYDROLYZED)

Boston: Demand slow; supply ample; $65.
Ft. Worth: Demand fair; supply sufficient; export inquiry increasing; 85% protein $63@65 bulk, $65@67 sacked, delivered Ft. Worth.
Los Angeles: Demand and trend steady; supply adequate; 90¢ a unit of protein, sacked.
Salisbury, Md.: Demand spotty; supply excessive; $62, f.o.b.

FISH MEAL

Ogden: Supply good; $1.05 a unit, f.o.b. Coast; 65% $105@108.
Cincinnati: Demand fair; trend steady; supply adequate; $108.60.
Ft. Worth: Demand fair; supply sufficient; sacked: 65% protein Peruvian $92.50, December; 60% protein menhaden $99, delivered Ft. Worth.
Boston: Demand good; supply fair; 60% $90@92.
Omaha: Demand good; trend strong; supply plentiful; 60% menhaden $110, f.o.b. Omaha.
Los Angeles: Demand fair; trend firmer; supply adequate; local production, 60% protein $1.50 a unit, sacked.
San Francisco: Demand slow; supply ample; $1.40 a unit of protein.
Louisville: Demand dull; trend steady; supply light; $100@110, sacked.
Minneapolis: Demand fair; supply ample; West Coast 60% blended steady at $113, sacked, delivered; Canadian herring $1.30 a unit, West Coast, subject to production.
Chicago: Demand poor; supply ample; trend easier; sacked: menhaden, East Coast $88@90, Gulf $86@90; menhaden scrap, East Coast $84@86, Gulf $82@86; Canadian herring meal $1.30@1.35 a unit of protein.
Buffalo: Demand light; trend steady; supply ample; 60% protein menhaden $100 bulk, $105 sacked.
Seattle: Demand and supply good; trend firm; $1.45 a unit protein, f.o.b. truck Vancouver, B.C. (Canadian production).
Denver: Demand good; trend steady; supply short; $1.40 a protein unit, Vancouver, f.o.b.

HAY

Cincinnati: Demand slow; trend steady; supply adequate; second cutting alfalfa $35; No. 1 timothy $25; No. 1 timothy and clover, mixed $30; No. 1 red clover $30; straw $18.
Boston: Demand and supply steady; No. 2 timothy $39@42.
Wichita: Demand good; supply sufficient; prairie $24@27, alfalfa $28@30, baled.
Los Angeles: Demand slow; trend unchanged; supply ample; U.S. No. 1 $33@35; U.S. No. 2 leafy $29.50@31; U.S. No. 2 green $31@32; U.S. No. 2 $27@28.
Louisville: Demand slow; trend steady; supply good; local hay, all varieties: No. 1 $28@30, No. 2 $26@28; straw $18@20.
Ft. Worth: Demand fair for alfalfa, practically nil for others; supply sufficient; carlots, baled, No. 1 alfalfa $42@44, No. 2 $40@42; No. 2 prairie, nominal $30@32; No. 2 Johnson, nominal $28@30, delivered Texas common points.
Ogden: Supply good; $25 ton in the barn
Philadelphia: Demand slow; supply light; $25.50.
Seattle: Demand good; trend firm; supply fair; alfalfa, U.S. No. 2 green $37, delivered truck lots.

HOMINY FEED

Cincinnati: Demand fair; trend higher; supply adequate; $43.
Memphis: Demand poor; trend steady; supply ample; white $40.80, yellow $40.80.
Boston: Demand slow; supply ample; $51.
Louisville: No demand; trend very strong; supply very light; $51, sacked, up $6.
Kansas City: Demand good; trend strong; supply tight; white or yellow $34.50@35.
Chicago: Demand and supply fair; trend higher; $41.
Buffalo: Demand and supply fair; trend steady; $51, Boston.
St. Louis: Demand slow; trend firm; supply adequate; yellow $41.
Seattle: Demand good; trend firm; supply limited; $51, delivered carlots, sacked.

LINSEED OIL MEAL

San Francisco: Demand fair; supply ample; $71.
Louisville: Demand slow; trend steady; supply normal; old process $77, up 50¢; new process $71.50, unchanged; both sacked.
Ft. Worth: Demand slow; supply sufficient; 34% protein, solvent $69.50, December.
Cincinnati: Demand poor; trend steady; supply adequate; new process $53.50, old process $59, Minneapolis.
Boston: Demand slow; supply light; $70.20.
Wichita: Demand fair; supply ample; 34% $75, sacked.
Los Angeles: Demand steady; trend unchanged; supply ample; local production, 31% protein $71, December-January.
Omaha: Demand fair; trend steady; supply tight; 34% solvent $58.80; 32% old process $67.30, Omaha basis.
Philadelphia: Demand fair; supply light; 34% $71.
Minneapolis: Not following upswing in other protein feeds; solvent still $53 for December; expeller $58.50 for December, down 50¢ from last week.
Kansas City: Demand slow; trend firmer; supply ample; solvent process $52.50@53, old process $53@53.50, Minneapolis.
Chicago: Demand slow; trend easier; supply fair; Minneapolis basis: solvent $53, expeller $58.50.
Denver: Demand fair; trend steady; supply good; $70.50, sacked.
Seattle: Demand fair; trend steady; supply good; 34% protein (Montana) $85, delivered carloads, sacked.

LIVER AND GLANDULAR MEAL

Omaha: Demand and supply fair; trend good; 65% $160, sacked, Omaha.

MALT SPROUTS

Cincinnati: Demand fair; trend steady; supply adequate; No. 1 $44.
Boston: Demand and supply limited; $48, sacked.
Chicago: Demand and supply fair; trend firm; No. 1 uneven weight bags $46.50, sacked.

MEAT AND BONE MEAL

Cincinnati: Demand excellent; trend stronger; supply fair; 50% meat and bone scraps $72.50, Cincinnati.
Boston: Demand good; supply adequate; $1.05 a protein unit; converted, 50% $65.
Wichita: Demand heavy; supply insufficient; 50% $85, sacked, f.o.b. plant.
San Francisco: Demand fair; supply ample; $1.35 a unit of protein.
Omaha: Demand good; trend strong; supply short; no quotation.
Ft. Worth: Demand good; supply inadequate; meat and bone, 50% $72.50 bulk, $75 sacked, f.o.b. Ft. Worth.
Ogden: Supply good; $75, 50% protein, sacked.
Los Angeles: Demand good; trend firmer; supply limited; 50% protein $1.45@1.50 a unit.
Louisville: Demand fair; trend steady; supply good; $80@85, sacked.
St. Paul: Demand very strong; supplies light; trend sharply upward; price up $4@6 in week to $80@85, sacked.
Kansas City: Demand good; trend firm; supply tight; 50% $77.50@80.
Chicago: Demand better; trend higher; supply fair; 50% protein $80, sacked.
Denver: Demand fair; trend steady; supply ample; $62.
St. Louis: Demand good; trend firm; supply limited; $76.
Buffalo: Demand good; trend firm to strong; supply light; 50% meat scraps $75 bulk, $80 sacked.
Denver: Demand fair; trend steady; supply good; $112.50.
Seattle: Demand good; trend steady; supply ample; $1.50 a unit protein, ex-processing plant, sacked.

MILLFEED

Minneapolis: Sharp rise in market strength continues; demand good; supplies only adequate; bran up $1 in week to $44, sacked; middlings $1 stronger at $44@44.50, sacked; red dog up $1.50 to $45@45.50, sacked.
Kansas City: Demand good; trend strong; supply tight; sacked, shorts $42.50@43, bran $41@41.50; bulk, shorts $40.50@41, bran $38.50@39, middlings $42.50@43.
Wichita: Demand good; supply short; Dec. 19, basis Kansas City: bran $40.25@40.75, shorts $40.25@40.75; both bran and shorts declined $1, compared with the preceding week; bulk middlings $41@41.50, nominal.
Omaha: Demand good; trend strong; supply tight; sacked bran $42; sacked gray shorts $42; bulk standard midds. $44, all Omaha basis.
Ft. Worth: Demand fair; supply adequate; bran, bulk $45.50, burlaps $48; gray shorts, bulk $47, burlaps $48.50; bulk middlings $47, delivered Texas common points; bulk bran, shorts and middlings $1 lower; sacked bran and shorts $1 lower than previous week.
Chicago: Demand very good; trend sharply higher; supply light; standard bran $46, standard midds. $48, red dog $48.
St. Louis: Demand active; trend strong; supply tight; sacked, bran $45.50, shorts $46; bulk, bran $43.50, middlings $48.
Cincinnati: Demand poor; trend higher; supply adequate; bran $49.50, middlings $50.50.
Boston: Demand good; supply spotty; bran $54.10, middlings $54.60.
Buffalo: Although buying was meager last week, prices advanced and held because of tight shipping positions and curtailed supplies resulting from reduced flour mill running time; some resistance to higher prices has appeared among big mixers, who have been resorting to substitutes, but not enough to top prices or weaken shipping positions; levels here at or under western competition; sacked differential on bran and middlings steady at $5; bulk and sacked bran rose $2; bulk and sacked middlings and red dog advanced $3; quotations Dec. 21: bulk bran $48@49, sacked $53@54; bulk middlings $49@49.50, sacked $54; bulk red dog $49@52.50, sacked $54@57.50.
Philadelphia: Demand slow; trend unsettled; supply fair; bran $53.50, standard midds. $54.50, red dog $57.50.
Louisville: Demand fair; trend weak; supply good; bran $50.20, off $2.50; mixed feed $50.80, off $2.50; shorts $51.80, off $2.50; all sacked.
Memphis: Demand poor; trend lower; supply ample; wheat bran $46.80, gray shorts $47.30, standard midds. $49.80.
Seattle: Demand good; trend firm; supply limited; $38, delivered common transit points, carlots.
Ogden: Supply good; to Utah: red bran and mill run $39, middlings $44.
Denver: Demand fair; trend steady; supply ample; shorts $44.25, bran $44.25, millrun $44.25.
Los Angeles: Standard millrun $48.50@48, good demand, trend firmer, supply adequate; red bran $55.50@56.50, demand poor, trend easier, supply adequate.
San Francisco: Demand good; supply fair; millfeed $48, red bran $52.

MINERAL FEED

Sioux City: 50 lb. mineral blocks 8.2% phosphorus $92; 7.5% phenothiazine sheep mineral blocks $1 each.
Wichita: Demand heavy; supply sufficient; all-purpose with iodine, 50 lb. blocks $97.50, 100 lb. bags $92.50, f.o.b. plant.
Ogden: Supply ample; $113 ton in 50 lb. blocks; $103 ton, granular, 50 lb. bags.
Ft. Worth: Demand fair; supply adequate; all-purpose granules $90, block $70; mineral phosphorus 8% granules $106, block $113; cattle-sheep mineral 7% phosphorus granules $100, block $107; hog mineral phosphorus 3½% granules $87, phosphorus 2% $77 (all in 50 lb. paper bags).
San Francisco: Demand steady; supply good; all-purpose with iodine $70, sacked.
Seattle: Demand fair; trend steady; supply good; mixer mineral $48, all-purpose mineral $85, both ex-warehouse, sacked.

MOLASSES

San Francisco: Demand and supply good; $24.50 ton, f.o.b. cars Richmond, Cal.
Cincinnati: Demand fair; trend steady; supply adequate; 13¢ gal., New Orleans.
Boston: Demand good; trend firmer; supply fair; 15¢ gal. in tank cars.
Ft. Worth: Demand good; supply sufficient; blackstrap 13¾¢ gal., f.o.b. Houston; delivered Ft. Worth, truck $29.78, seller's market price on date of shipment.
Minneapolis: Steady market, but demand good; blackstrap $33, tank truck, delivered; beet $30, blend $31.50.
Los Angeles: Demand good; trend fair; supply adequate; $22.50, f.o.b. tank cars; $22.75, f.o.b. tank trucks.
Louisville: Demand fair; trend firm; supply normal; 13¢ gal., tank car lots, f.o.b. Gulf ports.
Kansas City: Demand fair; trend strong; supply ample; blackstrap 13¢ gal., f.o.b. New Orleans.
Buffalo: Demand fair to good; trend steady to higher; supply fair; 16½¢ gal., f.o.b. Albany.
Denver: Demand good; trend steady; supply ample; 13¢ gal., New Orleans; $37.43 ton, Denver.
St. Louis: Demand fair; trend steady; supply ample; 13¢ gal., tank cars, New Orleans.
Seattle: Demand and supply good; trend firm; $24.75, f.o.b. Seattle, tank truck lots.
Memphis: Demand fair to excellent; trend steady to higher; supply ample; blackstrap 13¢ gal., tank car, f.o.b. New Orleans, and $29.50 ton, delivered Memphis, truck.

OAT PRODUCTS

Chicago: Demand quiet; trend steady to easier; reground oat feed $19; No. 1 fine ground feeding oatmeal $70; feed rolled oats $74.
Louisville: Demand fair; trend fairly steady; supply normal; reground $29.40, rolled oats $81, feeding oatmeal $75.50, pulverized oats $49.90, crimped oats $63.40, all sacked.
Minneapolis: Demand good; stronger oat market; feeding rolled steady at $74, sacked; feeding oatmeal steady at $63, sacked; pulverized up 50¢ at $41.50, sacked; crimped up 50¢ at $59.50, sacked; reground steady at $24, sacked.
Cincinnati: Demand poor; trend higher; supply adequate; pulverized white oats $48@51.
Boston: Demand and supply steady; white pulverized $53, reground oat feed $26, both sacked.
Ft. Worth: Demand slow; supply sufficient; 10% protein oat millfeed $43.20, reground $31.30, sacked.
Memphis: Demand poor; trend lower; supply ample; 3½% protein, reground oat feed $28.80.
Los Angeles: Demand slow; trend unchanged; supply adequate; local production, pulverized $67, sacked.
Philadelphia: Trend unsettled; pulverized white, demand slow, supply fair $48; domestic, demand slow, supply light $30.30; Canadian oat feed, demand fair, supply light $34.50, sacked.
Seattle: Demand fair; trend steady; supply fair; 80 lb. or better $57, delivered, truck lots.

OYSTER SHELL

Cincinnati: Demand fair; trend steady; supply adequate; 80 lb. bags $23.85, 50 lb. bags $24.10, 25 lb. bags $26.35.
Boston: Demand and supply steady; in paper $26.52.
Los Angeles: Demand fair; trend steady; supply adequate; $15.40, sacked.
San Francisco: Demand fair; supply ample; local $15, eastern $26, sacked.
Louisville: Demand fair; trend steady; supply good; in 80 lb. paper sacks $23.95; in 50 lb. paper sacks $24.20; in 25 lb. paper sacks $26.45.
Seattle: Demand and trend steady; supply good; $36, delivered carlots, sacked.

PEAT MOSS

Cincinnati: Demand and supply good; trend steady; truck loads $3.45 a bale, f.o.b. Cincinnati.
Boston: Demand and supply steady; $3.15 a bale, in carlots.
Los Angeles: Demand fair; trend steady; supply adequate; Canadian 6.6 cu. ft. bales $3.65.
San Francisco: Demand and supply fair; $3.65 a bale.
Philadelphia: Demand slow; supply fair; $2.85 a bale, f.o.b. pier.
Chicago: Demand and supply fair; trend firm; standard 7½ cu. ft. bale $3.80.
Seattle: Demand poor; trend steady; supply good; $2.60 a bale, delivered truck lots.

POTASSIUM IODIDE (U.S.P.)

Cincinnati: Demand good; trend steady; 90% KI in calcium stearate or carbonate mixtures: 250 lb. drums $1.35, 100 lb. in 100 lb. drums $1.35, 100 lb. drums $1.38, 25 lb. drums $1.41, f.o.b. Cincinnati.
Chittenango, N.Y.: Demand good; trend firm; supply adequate; standard trace mineral blends; 90% U.S.P. K.I. and 10% calcium stearate, magnesium carbonate or calcium hydroxide: 100 lb. drums $1.42 lb.; 200 lb. and up $1.40 lb., delivered basis.

POULTRY BY-PRODUCTS

Boston: Demand good; supply light; $70.
Los Angeles: Demand and trend steady; supply adequate; $1.20 a unit of protein, sacked.
Salisbury, Md.: Meal demand good; supply ample; $70, f.o.b.

RIBOFLAVIN

Cincinnati: Trend steady; feed grade (in feed supplements) 4¢ gm. in less than ton lots in 3.36 to 16 gm./lb. mixtures; 3¢ in ton lots or more, freight prepaid or paid to destination.

RICE BY-PRODUCTS

Ft. Worth: Demand good; supply moderate; rice bran $34@35, f.o.b. south Texas rice mills, sacked; hulls $4.50, sacked.
Los Angeles: Demand slow; trend unchanged; supply adequate; California production, high fat content, bran $49@50, sacked.
San Francisco: Demand good; supply ample; bran $40, sacked.

SCREENINGS

Cincinnati: Demand good; trend steady; supply fair; unground grain screenings $23.50@24.50.
Minneapolis: Both supplies and demand slim; trading very slow; market in standstill; Canadian unchanged at $21 for December, $22 for January; domestic ranges unchanged; lights $8@12, mediums $13@20, heavies $21@30; 15% flax screenings $37.
Chicago: Demand fair; trend steady to higher; supply ample; ground grain $32.50, Canadian $26.
Buffalo: Demand and supply fair; trend steady; ground, sacked $36.25, New York; unground, bulk $28.75, New York.

SOFT PHOSPHATE
(Sacked, delivered)

Atlanta: $20.65.
Buffalo: $25.50.
Chicago: $24.96.
Cincinnati: $23.64.
Des Moines: $25.42.
Kansas City: $25.07.
Memphis: $22.28.
Minneapolis: $26.12.
Philadelphia: $24.51.
St. Louis: $24.32.

SORGHUMS

Ft. Worth: Demand fair; supply sufficient; No. 2 yellow milo $1.93@1.95 cwt., delivered Texas common points.
Ogden: Supply ample; $40@41.
Los Angeles: Demand steady; trend weaker; supply ample; no quotations.
Seattle: Demand and supply good; trend firm; $45.50, delivered carlots.

SOYBEAN OIL MEAL

San Francisco: Demand fair; supply ample; $72.10.
Philadelphia: Demand and supply fair; 44% $49, Decatur.
Los Angeles: Demand improved; trend firmer; supply adequate; $74.40@74.90.
Ft. Worth: Demand good; supply sufficient; 44% $57@59 December, $58@60 January; 50% $62@64 December, $63@65 January.
Memphis: Demand fair; trend steady; supply ample; prime 44% solvent $55, f.o.b. Memphis.
Cincinnati: Demand fair; trend higher; supply adequate; $52, Decatur.
Ogden: Supply good; 41% protein $70@71, 50% protein $76@76.
Boston: Demand cautious; supply ample; 44% $48.50, 50% $53.50, both f.o.b. Decatur.
Seattle: Demand good; trend firm; supply ample; $72.60, delivered carlots.
Denver: Demand fair; trend steady; supply good; 44% $66.50.
St. Louis: Demand good; trend firm; supply limited; 44% $56.
Wichita: Demand good; supply insufficient; 44% $63, 50% $68, sacked; 44% $59, 50% $64, bulk, f.o.b. Wichita.

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Omaha: Demand good; trend strong; supply tight; 44% $58.70, delivered Omaha.
Minneapolis: Price continues to grow; demand heavy; 44% nearby price has climbed to a point where deferred is selling at slight discount under spot; 44% $48.50, Decatur; 50% $54, Decatur.
Kansas City: Demand fair; trend strong; supply adequate; 44% solvent process $51.50 @52, Decatur.
Chicago: Demand excellent; trend higher; supply fair; Decatur basis, 44% protein, unrestricted billing $53.50, E.T.L. $49.50@50; 50% protein, unrestricted billing $57.50, E.T.L. $55.

TANKAGE

Kansas City: Demand good; trend strong; supply tight; 60% digester $77.50.
Chicago: Demand improved; trend higher; supply moderate; 60% protein $80, sacked.
Omaha: Demand good; trend strong; supply short; $80.
Cincinnati: Demand good; trend stronger; supply short; 60% digester $74, Cincinnati.
Louisville: Demand slow; trend firm; supply good; 60% protein $80@85, sacked.
Ft. Worth: Demand good; supply sufficient; 60% digester $77.50, sacked, Ft. Worth.
Wichita: Demand heavy; supply insufficient; 60% $85, sacked, f.o.b. plant.
St. Paul: Demand very strong; supplies light; trend sharply upward; price up $4@6 in week to $74@78, sacked.
St. Louis: Demand good; trend firm; supply limited; $77.

UREA FEED COMPOUND

Woodstock, Tenn.: Minimum 42% nitrogen, 262% protein equivalent; $100, bagged, f.o.b. freight equalized with nearest producing plant; bulk $96.
Lima, Ohio: Minimum 42% nitrogen, 262% protein equivalent $100, f.o.b. bagged.
Pryor, Okla.: Minimum 42% nitrogen, 262% protein equivalent; $100, f.o.b. bagged; $96, bulk, cars or trucks, freight equalized with nearest producing point.
New York: Minimum 42% nitrogen, 262% protein equivalent, $100, f.o.b. bagged; $96, bulk, cars or trucks, freight equalized with nearest producing point.
Belle, W. Va.: Minimum 42% nitrogen, 262% protein equivalent; $100, f.o.b. bagged; $96, bulk, cars or trucks, freight equalized with nearest producing point.

VEGETABLE AND ANIMAL FAT (HYDROLYZED)

Ft. Worth: Demand good; supply limited; 8¢ lb., f.o.b. north central Texas.

VITAMIN E FEED SUPPLEMENT

Cincinnati: Demand good; trend steady; 50 lb. or more $1.40, less than 50 lb. $1.43, freight allowed to destination.

WHEAT GERM MEAL

Minneapolis: Weak demand; price steady to down $1 from last week, $47@48, jutes.
Buffalo: Demand fair; trend steady to higher; supply fair to poor; commercial grade $64.50, sacked, f.o.b. Buffalo.

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HATCH

(Continued from page 1)

egg-type chicks. USDA noted that the increase indicated for hatchings in the first three weeks of the month would follow an increase of 27%—50 million chicks—in the preceding seven months.

While the percentage increase in these seven months was large, the number of chicks hatched was less significant because the months covered a period of seasonally small hatchings. However, as some observers have noted, the increases were indicative of an expansion in production and of the new hatching season's starting earlier than usual, induced to a great extent by strong chick demand brought on by good egg prices.

Peak Season Ahead

If the chick hatch expansion trend shown in months of relatively low volume continues in the months ahead, when hatchings rise to a seasonal peak, an even modest percentage increase in hatchings will create large increases in terms of chick numbers. And this is the crux of Mr. Benson's warning. He said USDA had previously indicated that springtime increases beyond about 10% in the number of chickens raised would be a cause for concern.

USDA's data on chicken eggs in incubators Dec. 1 shows that greatest expansion in hatchings are expected in the major egg-producing regions of the U.S.—the west north central, the south Atlantic, the east south central and the west south central states. The per cent increase in incubations from Dec. 1, 1959, to Dec. 1, 1960, ranges from 60 to 72% in these regions.

In the other geographic divisions, increases of about a third were indicated for New England, middle Atlantic and Pacific states. An increase of about a fifth was reported for the east north central and the mountain states.

November's hatch of egg-type chicks totaled 16,112,000—an increase of about 20% compared with production in the same month a year earlier.

Although egg-type chick hatchings have been greater in all months beginning with May this year than in the same months of 1959, big reductions in the major hatching months of January, February, March and April were of sufficient magnitude so that the production of 463,943,000 chicks during the first 11 months of 1960 was 12% less than over the same period last year.

Broilers

Continued expansion is in the outlook, too, for broiler-type chicks and for turkey poults. But if the increase in broiler-type chick hatchings this month is no greater than the 8% increase indicated by the number of eggs in incubators Dec. 1, 1960, as compared with a year earlier, the percentage of change will be less than in each of the preceding months.

Production of broiler-type chicks totaled 143,621,000 in November of this year—an increase of 11% compared with the 129,729,000 counted in November of 1959. Broiler chick production January through November totaled 1,804,359,000, up 6% from the same months of 1959.

CENTRAL SOYA

(Continued from page 1)

699 shares outstanding on Nov. 30), an increase of 10¢ over the 30¢ per share earned in the first quarter a year ago.

Mr. McMillen attributed the increased first quarter earnings to somewhat improved agricultural economic conditions and to processing and manufacturing efficiencies effected during the past year. He said that the company was encouraged over the upturn in earnings and sales, and, on the basis of present indications, felt that the current fiscal year would show an improvement over the preceding year.

New Type Baler Twine Has Nutritive Value

MEMPHIS — A new rayon-cellophane baler twine developed by the American Viscose Corp. has actual nutritive value, digestible dry matter and digestible energy equal to most concentrate feeds, according to a report presented at the recent American Society of Agricultural Engineers meeting.

However, these facts should not be construed to mean that the twine could serve in any way as a complete replacement for commonly used feeds, it was pointed out by Dr. J. W. Bratzler, professor of nutrition, and M. E. Schroeder, assistant professor of agricultural engineering, both at Pennsylvania State University.

The researchers used sheep for their experiment on nutritive value of the new baler twine. The twine was cut in quarter inch lengths.

The digestible dry matter and digestible energy values for the twine were 88.9 and 90.4% respectively.

Complete proximate analyses of the rayon-cellophane twine showed that it contained on the dry matter basis: crude protein, 1.02%; crude fiber, 65.09%; ether extract, 1.70%; ash, 1.00%; nitrogen-free extract, 31.19%, and gross energy, 4338 cal./g. The researchers advised that little significance should be attached to the values of crude protein and ash since they were of such small magnitude. As might be expected, the twine is composed largely of crude fiber and nitrogen-free extract, the two said.

It was also reported that at no time was there any trouble with getting the test animals to consume the daily allotment of twine. It appeared to be eaten with a fair degree of relish and no digestive upsets were encountered, the researchers said.

The research pointed up the fact that the ruminant animal can digest the rayon-cellophane twine and, under the conditions employed in this experiment, without harmful effects to sheep.

Buy and Sell through WANT ADS —in— FEEDSTUFFS

DEATH

(Continued from page 1)

flown to Duke University hospital, here, for treatment. Shortly before his illness, he had returned from a month-long business trip to Europe and had been reported in good health.

Mr. MacMillan was born in Ft. Worth, Texas, in 1895 and was a Minneapolis area resident since 1903. He attended Phillips Academy, Andover, Mass., and Yale University, where he graduated with a B.A. degree in 1917.

He began his business career in 1919 as a grain buyer and trader for the Cargill Elevator Co. at its Duluth, Minn. office, and in 1926 was elected a director of the firm.

When the Cargill Elevator Co. became Cargill, Inc. in 1932, Mr. MacMillan became vice president and general manager, and in 1936, became president, succeeding his father, John H. MacMillan, Sr. He was named board chairman in 1957, succeeding John G. Peterson.

Mr. MacMillan was well known for designing large elevators for efficient storage and handling of grain, and he was responsible for two developments—accurate temperature measurement inside huge storage bins and development of equipment for rapid loading and unloading of the bins—that were revolutionary in the grain industry. He also pioneered in development of integrated barge-and-towboat units now widely used on the inland waterways.

He gave close personal supervision to one of the Cargill firm's latest projects, a 12-million-bu. elevator on the Atlantic end of the St. Lawrence seaway at Baie Comeau, Quebec, Canada, opened this year.

During his 20 years as president, Cargill more than tripled in size. Its annual sales volume is now well over $1 billion, making it the nation's largest grain handling firm. During his tenure, the company also became significant in grain export, production of vegetable oils, development of hybrid seed corn and production of animal and poultry feeds through its subsidiary, Nutrena Mills, Inc.

Mr. MacMillan was a director of the First National Bank of Minneapolis and the Kansas City Southern Railway, and was president and trustee of the Walter Kempner foundation of Durham, N.C.

A brother, Cargill MacMillan, was president of the Cargill firm until July of this year, when he was granted a leave of absence of recover from illness.

Surviving are his wife, Marion; a daughter, Mrs. Hubert F. Sontheim, Geneva, Switzerland; two sons, John H. MacMillan III, Minnetonka, and William Duncan MacMillan, Geneva, Switzerland; and his mother, Mrs. John H. MacMillan, Sr., Wayzata.

A memorial service will be held at Westminster Church, Minneapolis at 2 p.m. Wednesday, Dec. 28. The family has requested that memorials go to the Walter Kempner Foundation at Duke University Hospital, Durham, N.C.

Kansas City Company Names Works Manager

KANSAS CITY—M. G. Purpus has been appointed works manager in charge of Black, Sivalls & Bryson, Inc.'s Kansas City plant, according to W. C. McCool, manufacturing vice president.

Mr. Purpus, vice president of the company, has been sales manager for the company's line of agricultural products for the past eight years. As Kansas City works manager, he retains marketing responsibility for this product group and assumes responsibility for manufacturing, engineering and related activities of the Kansas City plant operation.

Headquarters for

Gorton's Blends (For Poultry and Livestock)
New Englander Vitalizer (For Ruminants)
North Atlantic Fish Meals (Redfish, Whitefish, Menhaden, and Sardine/Herring)
Condensed Fish Solubles
Full Fish Meals (Entire Original Proportion of Dried Solubles Are Included)
Marine Vitamin Oils (All Potencies)
Frozen Fish (For Mink Feeding)

NEW ENGLAND BY-PRODUCTS CORP.
177 Milk Street • Boston 9, Mass. • HUbbard 2-1682

L. L. Smith D. I. Frankhauser

EXPANSION

(Continued from page 1)

and fertilizer division, first as a nutritionist, then as purchasing agent, sales manager and assistant general manager in charge of sales and nutrition.

Mr. Smith also was co-owner and co-manager of a hatchery, and received his B.S. degree in poultry husbandry and animal nutrition from Iowa State University.

Mr. Frankhauser, a specialist in turkeys, beef cattle and dairy feeding, was employed for 20 years by Archer-Daniels-Midland Co., Minneapolis. He was coordinator between the research and feed sales departments and handled turkey service problems.

His capacity with Fruen's formula feed division will be in sales and service, mostly on turkeys, beef cattle and dairy cattle.

FDA

(Continued from page 1)

for repealing the Delaney clause at present.

This amendment would be of immediate help regarding diethylstilbestrol, which is a "carcinogen" in some animal tests. AHI states. "It has been banned for poultry—although administrative proceedings are still underway and this issue may end up in court. No new new-drug applications are being processed by FDA for use of stilbestrol in cattle, although current use can be continued since new drug applications in effect at the time of the passage of the Food Additives Law are considered prior sanctions which exempt the chemical.

There are no detectable residues in meat when stilbestrol is used for cattle.

"The exemption might also help in the case of arsenicals, which are in the same boat as stilbestrol—no new uses approved—because of suspicion of carcinogenesis," the bulletin stated. The arsenicals used in feeds have never been shown to cause cancer. If Congress passes the exemption for no-residue feed additives, arsenicals would be exempt from the Delaney clause—if label directions on withdrawal times were followed so that no residues were present in food. FDA-ers claim the withdrawal directions for arsenical-containing feeds are sometimes disregarded.

The bulletin also pointed out the possible new approach to the Delaney clause disclosed by the Manufacturing Chemists Assn. Monsanto Chemical Co.'s Dr. Richard S. Gordon, a member of MCA's food additive committee, noted that the new color additive law contains a provision for ad hoc scientific advisory committees nominated by the National Academy of Sciences to deal with FDA-industry disputes under the Delaney clause.

Under the color additives law, an ad hoc committee can judge only whether a chemical is a carcinogen. Dr. Gordon urged that a provision for advisory committees be placed in the food additive law, but that the committees be empowered to judge whether the chemical would be safe in its intended use. (Feedstuffs, Dec. 10)

RESEARCH

(Continued from page 7)

seemed to be some interplay between the thyroprotein and cortisone at the 0.10 mg. level.

Embryonic Swine Mortality

Dr. Don Hudman of the University of Nebraska summarized some reports in the literature on the effects of thyroprotein in reducing the embryonic mortality of swine. These also showed some effects in increased ovulation in the second heat period of gilts. The thyroprotein was fed at the level of 112 gm. per ton.

Disease-Free Pigs

Dr. Harvey Helms, veterinarian of Trimble Farms, well known Missouri Landrace hog breeding establishment, told the group about a program on the development of a specific pathogen free herd at Trimble Manor, following out a plan developed at the University of Nebraska. In this program, which aims to eliminate viral pig pneumonia, rhinitis and non-specific types of scours, the pigs are purchased from a SPF laboratory and are wholly isolated from any contact with other swine.

Dr. Helms said that the program can be made to work if the farmer will keep the pigs separate. Although the pigs cost $50 per head as they come from the laboratory, the SPF program is economically sound if properly operated, he said.

Beef Cattle Discussion

One beef cattle discussion was on the program. Dr. John Matsushima of the University of Nebraska made a preliminary report on work with thyroxine implants in sheep and cattle that is now under way at Nebraska. The work was started to find a means of decreasing fat coverage on the outside while maintaining the marbling of the interior.

In the first of these experiments, which were preliminary, the implanting of 30 mg. of sodium L-thyroxine per 675-lb. steer resulted in better gains all the way through the 100-day feeding trial. Quality of carcass was improved, Dr. Matsushima said, with marbling increased and some reduction in outside fat.

A second trial on 455 lb. steers fed for 270 days included the use of 40 mg. of sodium L-thyroxine and also 100 mg. of testosterone, as well as a combination of the two. In this trial an early depression in gains compared with controls was shown for the various additives, which may have been due to the higher levels used, Dr. Matsushima said. As the trial progressed the testosterone ond the combination showed the greater gains, but the thyroxine also exceeded the controls. The testosterone was more effective in reducing outside fat, he said. These tests were preliminary, he emphasized, and more extensive trials are now underway.

Some tests also were done with lambs with both materials, which did not show the early depression of gains. In some digestibility studies with lambs, Dr. Matsushima said that thyroxine showed an effect on digestibility almost immediately and there was a pronounced effect on fiber digestibility. Later in the trial the testosterone group showed a greater advantage in digestibility. Nitrogen retention was increased by the thyroxine and testosterone, Dr. Matsushima said, and these preliminary studies seem to indicate a promising avenue for more extensive research, he said.

During the meeting there was considerable informal discussion and one of the points covered was the use of implants vs. feed administration, with comment on both sides. Dr. Turner said one of the problems relating to effective hormone use is the changing size of the animal. Implants give a higher dose of the hormone at first when the animals are smaller and taper off when the dose should be increasing because of growth. For that reason of controlled intake he favored oral application, although the absorption was lower. Those who favored the implants felt that under practical conditions, varying needs of different animals due to size, sex and other factors could be more easily met by specific implant applications.

Bruce Varney, president of Agri-Tech, was chairman of the meeting.

ADDITIVES

(Continued from page 6)

said that commercial rations during the next three to five years will cost more per pound, but feed cost per unit of production will be reduced substantially as current knowledge is put into practice.

ADDITIVES FOR SWINE — The important present, and in some cases potential, role of additives in swine rations was pointed out in a detailed presentation by Dr. Damon Catron, vice president and director of research and marketing for Walnut Grove Products Co., Atlantic, Iowa. The illustrated presentation, based on a very extensive compilation and summary of data, included a documented economic as well as scientific evaluation of the place of various additives in rations for swine in all stages of the life cycle. Forty-seven additives for swine feeds have been cleared for use.

Dr. Catron covered such things as trace minerals, antibiotics, arsenicals, palatability regulators, feed preservatives, anthelmintics, nitrofurans, metabolic regulators, enzymes and amino acids.

The former Iowa State University scientist cited, among other things, the environmental and management factors involved. The non-specific disease level of the farm, as he has noted before, affects the degree of response to many additives. Dr. Catron also commented that gain and feed efficiency have long been used in evaluating feeds, but it has not been easy to measure other things, like general health, which are significant.

All of the details of the presentation are not yet available, but it may be noted that feeding results and economic returns on the use of many additives were spelled out. For example, it was shown that the return per dollar invested in trace minerals may range from about $20 to as much as $238, depending on the stage in the life cycle. The return per dollar invested in antibiotics was shown to range from $1.13 to $4.81 for different stages of growth and finishing. It also was mentioned that antibiotics reduce variation in litters and spare B vitamins.

Dr. Catron predicted that scientists will find how enzymes can be used more effectively. The degree of response to enzymes, he observed, appears to be related to disease level. Commenting on arsenicals, he mentioned that, in addition to other factors involved, there is some evidence that 3-nitro decreases back fat.

ADDITIVES FOR BEEF AND DAIRY CATTLE AND SHEEP — While in some cases definite benefits have been shown from certain additives, in other instances responses vary (depending perhaps on certain conditions), and still more research is needed. Also, feed men and veterinarians have a responsibility to work with producers to get best results in various situations and to comply with control requirements.

This was part of the general picture presented by Dr. S. H. Morrison, director of Agricon, Clinton, Iowa, in a discussion of additives for ruminant feeds. He covered the general subject through comments on specific types of additives.

1. Hormones or other compounds exerting effects upon the endocrine glands or appearing to change body actions in a similar manner. Use of stilbestrol in beef cattle rations was called by Dr. Morrison "the most important nutritional development for this species during the past five years in terms of cold cash returns to the feeder." The in-fed method, he said, is still preferable among many feeders because it is more foolproof. With lambs, as compared with cattle, closer observation and more skilled practice may be necessary to avoid trouble.

Other compounds of a similar nature have been under investigation but may not become available unless there is a change in interpretation of the federal law.

Dr. Morrison also discussed thyroid-inhibiting compounds and other types of thyroid compounds. Thiouracil, which inhibits thyroid action, has been found unpalatable to most animals, and experimental results have been sporadic. A newer thyroid inhibitor, Tapazole, will improve gains and feed efficiency in cattle fairly consistently but not in sheep. The increased gain is exhibited for a fairly short period. If this compound is approved for use, said Dr. Morrison, it will be best adapted to the last part of the fattening period.

He said that use of thyroxine, containing iodinated casein, which stimulates milk production, necessitates careful feeding and management and "probably should be used only for the best producers or in an effort to build a 'base' for fluid milk markets."

2. Antibiotics — Some broad statements can be made, but such things as sex, type of ration, disease level and management methods may make the statements invalid, said Dr. Morrison. There may be little response with top management and no confounding disease levels, but under practical conditions, results from growth-stimulating levels of antibiotics have often brought dramatic results. It was suggested that individual situations should be considered. When antibiotics are fed with stilbestrol, carcass quality is often improved, Dr. Morrison continued, and the effect appears to be additive. He also mentioned high level uses for specific conditions but said it may be better to sort out and treat animals showing symptoms.

Dr. Morrison said that in one trial hygromycin seemed to depress feed intake and daily gain but to improve feed efficiency. Improved gain and feed efficiency in lambs were noted in a 1960 Kentucky trial.

3. Chemobiotics — Another class of compounds, called chemobiotics, includes those which have antibacterial, growth stimulating properties but cannot be classified as antibiotics, said Dr. Morrison. Among these, he said, are dynafac and nitrofurans.

Results with dynafac, he said, have been conflicting, but "there seems to be no doubt that under certain experimental conditions, this compound will stimulate gains, improve feed conversion and reduce feedlot bloat." He cited reports from western experiment stations and some midwestern feed yards and raised the question of whether this compound works better under stress conditions when cattle are closely confined in big yards. Work with lambs also was discussed. More research, he said, is needed.

Nitrofurans, as a group, he continued, "do not appear as yet to have a real place" in ruminant nutrition, but this does not mean this will not be true in the future.

4. Enzymes — The enzyme picture for ruminants, said Dr. Morrison, is still "confused and complex" and research on why enzymes appear to function in rumen metabolism is needed. Different experimental results may in large part be due to the fact that many products have been involved in the testing, according to the consulting nutritionist and veterinarian, and it may be necessary to be rather specific rather than generalize under the term "enzymes." Dr. Morrison said that "as of now, much more work must be done with enzymes, and particularly those few which appear to be somewhat better than the general run-of-the-mill ones." Some work has indicated that

Chicks Placed in Principal Broiler Areas

(000's omitted)

Week ending	Maine	Conn.	Penn.	Ind.	Ill.	Mo.	Del.	Md.
October 15	908	508	698	520	42	518	1,596	1,752
October 22	993	362	595	643	78	602	1,312	1,980
October 29	1,016	381	670	418	78	568	1,447	1,797
November 5	1,053	351	687	654	100	535	1,480	1,801
November 12	1,022	437	808	689	93	551	1,372	1,876
November 19	1,024	403	783	719	111	622	1,514	1,762
November 26	1,039	403	871	645	108	593	1,620	1,697
December 3	1,098	418	820	747	97	673	1,636	1,760
December 10	1,101	413	790	765	61	669	1,587	1,927
December 17	1,079	418	691	820	116	684	1,616	1,998

Week ending	Va.	W. Va.	N.C.	S.C.	Ga.	Fla.	Ala.	Miss.
October 15	713	356	2,809	317	5,750	198	3,099	2,027
October 22	684	385	2,746	302	5,624	228	3,053	2,057
October 29	714	353	2,820	308	5,627	205	3,156	2,094
November 5	767	400	2,890	284	5,923	178	3,132	2,179
November 12	867	327	2,876	319	5,968	210	3,110	2,196
November 19	928	294	2,993	339	5,974	186	3,133	2,198
November 26	921	335	2,974	306	5,805	209	3,008	2,244
December 3	913	372	3,063	300	5,795	217	2,868	2,368
December 10	842	410	2,991	324	5,921	224	2,748	2,368
December 17	940	423	2,985	305	5,705	252	2,955	2,376

Week ending	Ark.	La.	Texas	Wash.	Oregon	Calif.	Total 22 areas 1960	1959
October 15	2,884	319	1,635	218	214	1,024	28,105	23,755
October 22	3,022	337	1,608	257	137	892	27,897	24,066
October 29	2,998	341	1,660	182	158	1,051	28,050	25,712
November 5	3,222	345	1,642	262	126	1,036	29,047	26,271
November 12	3,375	371	1,739	280	194	1,117	29,797	26,884
November 19	3,328	385	1,760	290	210	1,114	30,070	27,133
November 26	3,327	362	1,730	205	182	1,108	29,692	27,416
December 3	3,423	280	1,947	301	206	1,236	30,546	28,868
December 10	3,555	422	1,945	256	212	1,263	30,794	29,054
December 17	3,814	395	2,120	246	270	1,265	31,473	29,029

the level used may be rather critical.

5. Tranquilizers — As a general statement, Dr. Morrison said, so far "results with low levels have not produced desired results in ruminants." More use, he said, might result from injectable tranquilizers and actual induction of a tranquilized state, as in shipping, weaning, parturition, etc.

6. Other additives — Dr. Morrison said that a number of additives show "little or no value under most conditions," but he mentioned that a test with live cell yeast, for example, questions this general statement. He also cited certain tests in which responses have been obtained from such things as fungicides, kelp and gibberellin. More work is needed with ethyl alcohol, he said, for it appears that type of ration may be affecting responses.

Little attention has been paid to "protein quality" for ruminants, but recent reports indicate lysine may be beneficial under certain regimes. In this connection, it has been indicated that the key to use of higher levels of urea in cattle diets may lie in the lysine area.

Dr. Morrison, in commenting on medicated feed controls, emphasized the point that he feels simpler language should be permitted in the terminology for additives. He also mentioned the need to inform feeders of withdrawal requirements.

He called for "unequivocal honesty" in the approach to feeders, and he said feeders should expect good technical service and know-how in use of additives. The role of the veterinarian in this area also was pointed out.

UREA FOR RUMINANTS — The value of urea depends entirely upon the use that bacteria and protazoa in the rumen are able to make of it, it was noted by Dr. C. L. Norton, head of the Kansas State University dairy husbandry department. Proper conditions must exist for satisfactory results to be obtained since the conversion of urea to protein is mediated by the microorganisms in the rumen and reticulum.

Dr. Norton said the following should be considered in formulating rations containing urea: An adequate level of starch feeds is needed to supply energy; high levels of readily soluble proteins in the ration will lower urea utilization because bacteria will utilize these in preference to the non-protein nitrogen; sugars such as glucose and sucrose molasses are less valuable than starch for urea utilization; an adequate level of phosphorus enhances urea utilization, and other minerals may play a part; dehydrated alfalfa (5-10%) may supply unknown protein synthesis factors; avoid use of low quality, high fiber feeds for, to be effective, a urea-containing feed needs as high quality ingredients as one made up entirely of natural proteins.

Dr. Norton went on to discuss effect of age and other factors in use of urea, and he commented on its use for different ruminant animals.

Studies on the combined use of more than one non-protein nitrogen compound (urea and biuret) indicate that nitrogen becomes available in more even amounts and over a longer period of time than when urea is used alone, Dr. Norton said.

He observed that the possibility of urea toxicity in ruminants is unlikely. Although toxicosis has been demonstrated experimentally, the unpalatability of feeds containing high levels of urea is a built-in safeguard to animals. Normally the quantities used in practice are less than the apparent toxic level.

In practical feeding, he said, urea may safely constitute 3% of the concentrate ration and 1% of the total ration. For best performance, intake of urea for cattle should not exceed 0.2 lb. per head daily or not more than one third of the protein requirement. The daily intake is the important factor, Dr. Norton said.

BOVINE REPRODUCTION AS RELATED TO NUTRITION—Dr. G. T. Easley of the Turner Hereford Ranch, Sulphur, Okla., presented a discussion of conditions where impaired fertility is the first symptom noticed or is concurrent with other clinical symptoms. In many cases where impaired fertility is of nutritional origin, the cause is complex, Dr. Easley pointed out. Many nutrients are so closely related to each other in naturally occurring feeds and in their assimilation that it is difficult to find a simple deficiency of a single nutrient. This is especially true of vitamin A, phosphorus and protein.

Dr. Easley noted, among other things, that a high plane as well as a low plane of nutrition can cause problems. He also discussed at some length whether various vitamin deficiencies are factors of importance. In connection with vitamin A, he mentioned some reports of deficiencies in cattle on supposedly good rations. Some of this, he said, has been thought to result from the breakdown of carotene and vitamin A by rancid fats from feeds stored long periods of time.

It is ordinarily believed that a deficiency of B vitamins does not occur in the bovine, but there are a few clinical reports of calves showing anatomical abnormalities similar to those in the offspring of laboratory animals fed a B-deficient diet. A great deal has been written about vitamin C therapy for impaired fertility in cattle, Dr. Easley commented, but there is no evidence that it is of any value or that vitamin C deficiencies occur in cattle. Also, there is no evidence that uncomplicated vitamin D deficiencies affect reproduction. Cattle have been maintained on vitamin E-free diets for three generations with little or no impairment of reproduction; there is no evidence to support wheat germ oil and sprouted oats therapy for impaired reproduction in the bovine.

Where inanition is not present, under usual feed and management practices, it is doubtful if a deficiency of protein, carbohydrates or fat great enough to affect reproduction ever occurs.

Dr. Easley told of phosphorus deficiency problems, but he said that experiments indicate a calcium deficiency has little or no direct influence on reproduction. An excessive amount may interefere with assimilation of phosphorus and iron and iodine. If the calcium-phosphorus ratio is overbalanced in either direction, breeding efficiency decreases. The optimum ratio seems to be 1.5:1 (Ca:P).

Certain possible mineral problems, including that of cobalt, plus problems of unknown cause, also were noted by Dr. Easley.

VITAMIN A

(Continued from page 6)

portance, and has been shown to be related to rations fed. And it is a problem which has found marked increases in use of supplemental vitamin A in cattle feeding.

Dr. Neumann mentioned some of the experiences and research findings at the Illinois experiment station, and some new findings at Illinois are expected to be announced soon. Also, he referred to some recent Missouri and Indiana research on nitrates, for one thing, and on vitamin A levels.

A clearer understanding of the role of vitamin A in the body, he pointed out, will help in the diagnosis and treatment of this increasingly more widespread feedlot problem.

Problem in the Field

In the field, it was noted, the problem has been greatest on some of the better and bigger farms which often feed corn silage and use stepped up fertilization and planting rates. Cattle have had rations containing what was thought to be more than enough carotene but deficiency symptoms have shown up. It has been suggested that higher levels of nitrites and nitrates in plants have been factors.

In addition to outlining field experiences, Dr. Neumann reviewed the previously reported information on the initial Illinois studies of the problem in experiment station cattle.

Upon reflection, Dr. Neumann said, it now seems that vitamin A symptoms occurred more frequently in the past, too, than one would expect.

Symptoms

Dr. Neumann reviewed symptoms of vitamin A deficiency. A gradual and almost unnoticed reduction in feed intake, followed by an equally unnoticed drop in rate of gain, generally precedes more obvious symptoms. If hand-feeding is practiced, it may suddenly be noticed that cattle are off-feed for no apparent reasons. More careful examination will reveal dead hair coats, listlessness, lachrymation and even cloudy corneas. In more advanced cases, edema in the feet, lower leg, hocks, knees and in the brisket is noted. A soreness in the feet and painful gait are often observed. Then a condition frequently being seen of late is a looseness in the joints and cartilaginous regions. This is most obvious where a wing-shouldered condition is present.

Dr. Neumann told of Illinois studies in which alfalfa meal and a vitamin A supplement were used in alleviation tests. There was more response from the vitamin A than the alfalfa used in this test, he reported.

Current Research

Illinois currently is doing more work, and reports will be made soon. One study involves silages from corn with different fertilization and planting rates.

Commenting on nitrates, Dr. Neumann said it may not be a toxicity problem but a constant level which is a factor.

Work on silage and the nitrite effect using rats also is being done.

Dr. Neumann referred to Missouri studies indicating that high levels of nitrate may result in a serious deficiency of vitamin A. (See stories in Feedstuffs Dec. 17.) Feeding of nitrites to rats caused a vitamin A deficiency and also a vitamin E deficiency.

It may be that the protection of carotene by vitamin E is being lost, Dr. Neumann said.

He mentioned that carotene is highly oxidizable. In the presence of an oxidizing agent like nitrate, the feeder may be feeding less carotene than thought.

Vitamin A Levels

Dr. Neumann noted that many feeders and feed manufacturers now are using higher levels of vitamin A in feeds than formerly, and veterinarians are recommending high levels. In some cases, much higher levels than necessary have been used. It also was noted that some vets are injecting vitamin E for hock trouble.

Illinois has done some work on vitamin A levels, and Purdue recently reported on studies of vitamin A levels fed to cattle which were receiving enough carotene to meet theoretical vitamin A requirements. (Feedstuffs, Dec. 17, page 11.) Dr. Neumann said that responses from up to 8,000 units were obtained, and on hot days, up to 16,000 units resulted in less effect of heat stress.

People have been relying on old values, Dr. Neumann said, but there probably should be a reevaluation when cattle are pushed; carotene values may be lower than thought previously, he observed.

At present it is generally assumed that 1 mg. of carotene is equivalent to 400 I.U. of vitamin A. "That this rate of conversion is not constant is now well known, and it appears that, under certain conditions, it is way below the above value," Dr. Neumann said. "Hence, attempting to meet vitamin A needs with carotene alone may result in underestimating the actual A activity or potency of the ration being fed."

Researchers are interested in the storage losses of carotene, especially in silage, Dr. Neumann said, and use of antioxidants is being evaluated.

Basic work on the effect of a deficiency on the status of the mucous membranes, especially the intestinal mucosa, is under way since this is believed to be the site of conversion of carotene to vitamin A. Also being investigated are possible interrelationships between phosphorus content of the ration and A deficiency and between vitamins A and E in body tissue.

Proper diagnosis of the problem is difficult, it was pointed out. Blood carotene or vitamin A values are of little value. Liver values are more reliable, but normal values have not been established to complete satisfaction. Another problem is that in a given group of cattle, there may be tremendous variations in the degree of avitaminosis so a diagnosis based on only a few animals may be misleading.

ADM OFFICE MOVES

KANSAS CITY—The office of the equipment division, Archer-Daniels-Midland Co., Kansas City, has been moved from the Centennial Building to 925 Board of Trade Building.

MARKETS

(Continued from page 2)

ents were reported this week: Hominy feed, up $2.50 ton; bone meal (steamed), up $5; meat and bone meal, up $1.50, and millfeed, up $1.50. Soybean oil meal, which has been advancing steadily in price during recent weeks, moved up another 50¢ ton this week.

Manufacturers were unanimous in predicting a stronger market for all types of feeds, especially if the ground remains covered with several inches of snow and temperatures continue at below-freezing levels.

South Central

Business is good in formula feeds this week. Volume was swelled by increased feeding due to wintry weather and snow covered pastures. Truck movement of feeds has been hampered to some extent by slippery highway conditions.

Demand is especially good for hog, cattle and dairy supplements. Egg feeds are moving well and further improvement is expected when the full effect of the cold weather is felt.

Feed manufacturers noted that the trade was making substantial withdrawals against bookings, particularly those with year-end cut-off dates. Dealers have been slow in working down these bookings, but now that only a holiday shortened week remains before expiration, the feed is going out with a rush.

The majority of the plants in the area will work their normal five-day week, but a few will shut-down at Friday noon to give their men additional holiday time. Sales departments look for sharply reduced business in the week ahead.

OBLIGATIONS

(Continued from page 3)

fective for a specific finished feed mixed by a specified feed mill or feeder on a showing that the finished feed is safe by reason of its composition for use as directed in its labeling. Part of the required demonstration of safety goes to the adequacy of the manufacturing methods, facilities and controls of the mixer including assays of the new drugs in the feed.

The effectiveness of an NDA for one mixer's product enables the manufacturer of the concentrate to make interstate shipments of the concentrate to that mixer as provided by and covered by the NDA. But it does not legalize shipment of the concentrate to anyone else or for any other purpose. In particular, the manufacturer of a concentrate intended for manufacturing use and containing a new-drug substance can be held responsible for violating the new-drug provisions and the food additive provisions of the Act if he ships it within the jurisdiction of the Act to anyone whose end product is not the subject of an effective new-drug application or supplemental application. Of course there are parallel provisions under the antibiotic regulations to legalize shipments of concentrates for use in finished feeds containing certifiable antibiotics.

Dealers and Mixers

Now let us consider the responsibilities of feed dealers, custom mixers, and/or feeders who use such concentrates for further mixing. None of these mixers can legally receive new-drug concentrates in interstate commerce for mixing unless a new-drug application or supplemental application is effective for the product he mixes. This follows from the fact that the concentrate would be in violation of the new-drug and food additive provisions of the Act when shipped. If the concentrate is from an interstate source, the mixer is obliged to have each of his products containing it covered by an effective NDA or supplemental NDA, whether or not the finished mixed feed is shipped in interstate commerce. This is not an insuperable obstacle even for a custom mixer. An NDA may provide for a number of finished feed formulations or specified ranges of composition that have been proven safe. The mixer is not only obliged to have an effective NDA, but is responsible for observing the conditions of it. Material changes in composition, manufacturing methods, facilities, controls or labeling from the provisions in the effective NDA constitute grounds for suspending the application.

"Prescriptions"

Let's make another point about the responsibility of feed dealers, custom mixers and/or feeders. The concentrates they receive cannot legally be employed for "prescription compounding" even on the prescription of a veterinarian unless the "prescription" is the subject of an effective NDA. We know that some veterinarians dislike such restrictions. It might be helpful to know that neither they nor the feed manufacturing industry is being discriminated against. New-drug substances similarly cannot be marketed within the jurisdiction of the Act for use in compounding medications for humans on the prescription of a medical doctor. The reason is the same in both cases—consumer safety, man or other animals.

Let us now consider the position of another manufacturer who is not mentioned in our subject, the chemical manufacturer or pharmaceutical manufacturer who supplies a new-drug substance to the concentrate manufacturer. If the new-drug substance is intended for use in a medicated feed and is shipped in interstate commerce to the concentrate manufacturer, it cannot be shipped or received legally until there is an effective new-drug application for a finished feed that covers its use.

It may be noted in conclusion that all of the obviously restrictive obligations and responsibilities imposed on the feed industry by the new drug and other provisions of the Food, Drug, and Cosmetic Act are necessary because of considerations of safety. We would be glad to listen to ideas for eliminating restrictions without increasing the hazards involved in the use in animal feeds of a growing multitude of potent drugs.

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Alfalfa Meal Stocks Up 17% from Year Ago

KANSAS CITY—Stocks of alfalfa meal—suncured and dehydrated together—were 17% greater Nov. 30, 1960, than on the same date of 1959, the U.S. Department of Agriculture reported. This supply factor has had a steadying effect on the alfalfa meal market during recent weeks of steadily improving feed demand.

While dehydrated stocks Nov. 30 of this year were 473,600 tons, compared with 400,100 tons a year earlier, suncured stocks in the same comparison showed a decrease of 1,700 tons.

Stocks of dehy meal Nov. 30 were down from the 553,000-ton total of a month earlier.

Dehy meal production dropped off to 15,800 tons in November, 700 tons less than the tonnage of suncured meal produced in the month.

Total alfalfa meal production May through November came to 1,264,800 tons, up from the 1,242,800 tons produced in the same period last year.

IOWA MILL EXPANSION

CHARLES CITY, IOWA — A & B Elevator, Inc., Charles City, recently completed an expansion program that makes it "one of the most modern feed mills and elevators in this area," the firm announced.

GRAIN STORAGE

OAKLEY, KANSAS — The Co-op Union Mercantile Co. is expanding its grain storage facilities with the construction of 19 tube-type bins with a capacity of 500,000 bu. The new facilities will increase the firm's total storage capacity to approximately 1-million bu., officials said.

Dawe's

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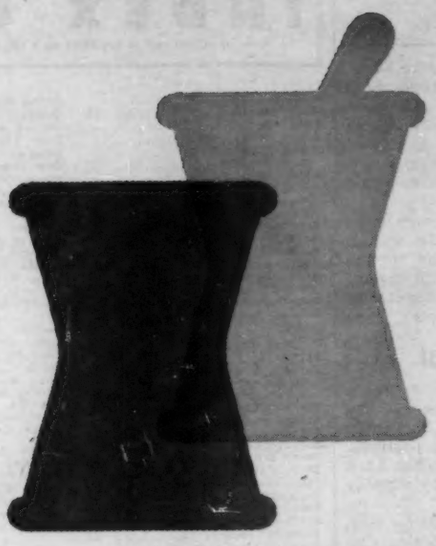

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